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Getting Started

This section explains the basic operating procedures for BTOS, including:

- starting up the system
- initiating a work session by signing on to the system
- entering commands
- installing and operating a mouse
- accessing the Four–Port Communications Expander
- accessing applications

Bootstrapping the System

When you start up the system by setting the **POWER** switch to ON, the system automatically performs a bootstrap operation. Bootstrapping (or booting) the system loads or reloads the operating system from disk storage to active memory.

Bootstrapping Hard Disk Systems With Local File Storage

On a standalone, cluster with local file storage, and master workstation, bootstrapping occurs automatically when you set the workstation's **POWER** switch to ON or press the reset button.

The system first tries to boot from floppy drives [f0] and [f1]; then, it tries hard drives [d0] and [d1], and finally the master, if a cluster line connects it.

If you have a cluster workstation with local file storage, you can bootstrap from the master automatically. Refer to your installation and configuration documentation.

Booting from the Master Manually

If your cluster workstation has local file storage, you can boot from the master and use the operating system that is appropriate for your type of workstation. If your cluster workstation does not have local file storage, it will automatically boot from the master.

To boot from the master, use the following procedure:

1 Turn on the master workstation or XE master.

2 Restart or reset your workstation:

- If you have a B24 or B27 workstation, press the **POWER** switch to the OFF position; wait at least 10 seconds, hold down the spacebar while pressing it back to the ON position.
- If you have a B26, B28, B38, or B39 workstation, hold down the spacebar and press the **RESET** button located on the back panel of your workstation.

A series of characters such as B,C,D,L,P,T: appear on the screen (the characters vary according to workstation).

3 Enter the letter **T**.

The characters **OS:** appear on the screen.

4 Enter the appropriate workstation identifier (refer to table 2–1).

5 Press **RETURN**.

A series of characters ending with a colon appear on the screen (the characters vary according to workstation).

6 Enter the letter **B**.

After a pause, the SignOn menu appears.

Table 2–1 **Workstation Operating System Numbers**

Workstation	Identifier
B24 (no local file storage)	200
B26 (hard disk)	250
B26 (floppy disk drive/no hard disk)	251
B26 (no local file storage)	252
B27 (hard disk)	125
B27 (floppy disk drive/no hard disk)	126
B27 (no local file storage)	127
B28 (hard disk)	240

Table 2–1 **Workstation Operating System Numbers** (continued)

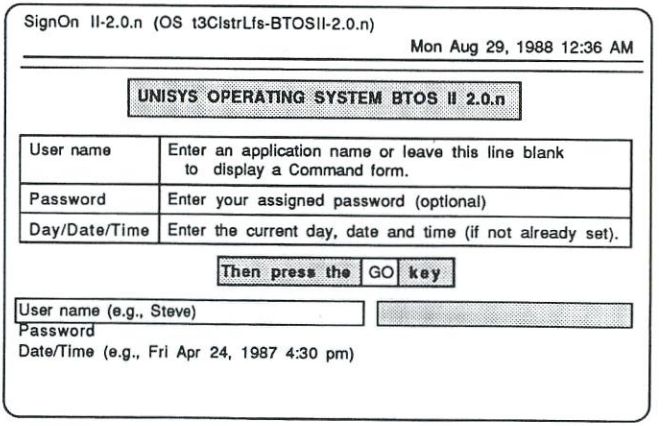
Workstation	Identifier
B28 (floppy disk drive/no hard disk)	241
B28 (no local file storage)	242
B38 (hard disk)	230
B38 (floppy drives/no hard disk)	231
B38 (no local file storage)	232
B39 (hard disk)	220
B39 (floppy drives/no hard disk)	221

BTOS Diagnostic Test

At startup, BTOS performs a diagnostic test to ensure that the system is functioning properly. The test takes less than a minute. During this time, the keyboard LEDs and the red or green lights on the disk drives flash on and off, and the system displays various letters and symbols on the screen.

Upon successful completion of the test, the SignOn form appears (refer to figure 2–1).

Figure 2–1 **SignOn Form**


SignOn II-2.0.n (OS t3ClstrLfs-BTOSII-2.0.n)
Mon Aug 29, 1988 12:36 AM
UNISYS OPERATING SYSTEM BTOS II 2.0.n
User name
Enter an application name or leave this line blank to display a Command form.
Password
Enter your assigned password (optional)
Day/Date/Time
Enter the current day, date and time (if not already set).
Then press the GO key
User name (e.g., Steve)
Password
Date/Time (e.g., Fri Apr 24, 1987 4:30 pm)

Signing on to the System

Each time you turn on the system or log out (refer to System Signoff), the SignOn form appears on the screen (refer to figure 2–1). You use this form to sign on to BTOS.

The User Configuration file for the system specifies the options available to you through the SignOn form. This file also determines the procedure you use to sign on.

SignOn Form

At the top of the SignOn form, the name of the form and version number of BTOS appear on the left, and the day, date, and time (if set) appear on the right. A double line separates this information area, called the Status Area, from the operating system name and a partitioned box that holds the SignOn prompts and their explanations.

Three fields, **User name**, **Password**, and **Date/Time**, appear. The **User name** prompt is in full–bright reverse video and its input field is half–bright reverse video. The cursor appears as a blinking underline in the input field, marking the location of the next entry.

The system administrator may configure your system to automatically enter an application without entering any user name, or may assign a user name and password to use in the SignOn screen.

You do not need to make any entries in the SignOn form fields if:

- the default for **User name** was configured for a specific user or application
- a password was not assigned to the system
- you do not want to change the date and/or time

If you accept the defaults, you press **GO**. The Executive command line appears below the SignOn form, unless your system has been configured to automatically enter another program, such as the word processor or Context/Window Manager. Refer to the documentation for that product.

During the SignOn procedure, you can use all the editing functions available to the Executive. For more information on the Executive, refer to section 3.

Use the following SignOn procedure if one or more user files have been created for specific users or applications, a password has been assigned to the system, or you want to set the date and/or time:

1 In the highlighted **User name** field, enter your user name or an application-specific user name the system administrator has provided.

If no specific user file exists, leave this field blank.

Note: On cluster systems, two users can sign on with the same user name at different workstations; however, they cannot both access word processing or the Editor at the same time.

2 Press **RETURN**.

The highlight and cursor move to the **Password** field.

3 Enter the password (if any) assigned to you. Your password does not appear on the screen; a pound sign (#) appears for every character you type.

This field is optional; leave the field blank if you do not have a password.

4 Press **RETURN**.

The highlight and cursor move to the **Date/Time** field. Choose one of the following:

- If you do not want to change the date or time, press **GO**.
- If the date and time are not set for the system or you want to change the date and/or time (at the top right of the screen), enter the current day, date, and time as shown in the prompt example or in one of the following formats:
  - 3/3/89 Fri 8:00 PM
  - 3.3.89 8:00 PM
  - 3–Mar–89 20:00
  - 8:00 Friday 3 March 1989 PM

You can enter the time based on a 24–hour clock. However, the system does not automatically display the time in 24–notation unless you edit the NLS.asm file (refer to your operating system reference documentation.)

Note: The system assumes the time entries between 7:00 and 11:59 are AM, and between 12:00 and 6:59 are PM. To specify a time before 7:00 AM or after 7:00 PM, you must include AM or PM.

5 Press **GO**.

If you make errors in your entries (for example, the day and date do not agree), an error message appears. If no errors exist, the current day, date, and time appear in the upper right corner of the screen. On B27 systems, the time updates continually; on B24, B26, B28, B38, and B39 systems, it updates only while the system is on.

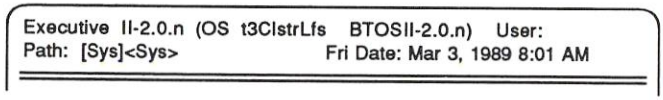
If only one parameter (day, date, or time) is inaccurate, you need to correct that one parameter only.

If you entered a user name, the application (if any) designated as the SignOnExitFile in the User file is executed. This might be the Executive (refer to section 3), the word processor, or Context/Window Manager (refer to the documentation for the product).

If the Executive command form appears, the following items display from left to right on the first line of this Status Area (refer to figure 2–2):

- the name and version of the Executive
- the release number and type of operating system running on the workstation
- the name you entered in the **User name** field

Figure 2–2 **Status Area**



The second line of the Status Area displays the following items from left to right:

- the current path, which includes the volume and directory names, and (optionally) the node name and the file prefix, in the following format:
  {node}[volume]<directory>prefix

  (For more information, refer to section 3.)
- status messages such as **Recording** or **Replaying** if the Executive is in a special mode
- the date and time to which the system clock is set

Entering Commands

You can initiate most BTOS operations by entering a command in the Executive command line. The BTOS Executive is the user interface to the operating system; it provides file management and system status information and utilities. (For more information on the Executive, refer to section 3.)

To initiate an Executive command, you type the command name at the Executive command line and press **GO**.

To see the commands available to you, press **HELP**. Press **HELP** again to see a brief description of the command's function.

Performing Mouse Operations

The mouse is a hand-held device you use with the workstation to point to objects on a screen and to select items from a menu. It tracks the movement of your hand on the work surface to control the position of the cursor on the screen. The cursor moves on the screen as your hand moves the mouse on the surface.

On graphics workstations, different cursor shapes can convey added information. With interactive graphics applications, you use to mouse to select menu options and do free-form drawing on the screen.

You can use either a 2–button or 3–button mouse. You use the 2–button mouse with a K2, K3 or K5 keyboard. You use the 3–button mouse with a K1, K2, K3, or K5 keyboard.

Note: The K4 keyboard does not support the mouse device.

There are no default actions for the mouse device. The defaults depend on the specific application software that you use; for example, Context/Window Manager.

To perform mouse operations, you must install the Mouse Services. The Mouse Services are a set of commands and software programs for interfacing the mouse with the operating system and application programs.

Installing the Mouse Server

The Mouse Server contains the programming request and procedural interfaces for the 2– and 3–button mouse, and handles cursor control and tracking.

You can install the Mouse Server manually each time you start up the system, or you can have the system install it automatically.

Installing the Mouse Server Manually

To install the Mouse Server manually, you type **INSTALL MOUSE SERVER** at the Executive command line, and press **GO**. There is no command form.

You must install the Mouse Server before you install Context Manager.

Installing the Mouse Server Automatically

The standard system software includes a special file, [Sys]<Sys>SysInit.jcl, with default entries that install the Queue Manager and the Spooler automatically when you restart or reset the system.

If you have a master or standalone operating system, you can add an entry into the [Sys]<Sys>SysInit.jcl file that causes it to install the Mouse Server automatically when you restart or reset the system. A cluster operating system booted remotely uses the master [Sys]<Sys>SysInit.jcl file.

To automatically install the Mouse Server when you restart or reset the system, you use the Editor or the word processing program to add the following line to the [Sys]<Sys>SysInit.jcl file:

$RUN [Sys]<Sys>Mouse.run

If you edit the file using a word processing program, you must remove any formatting characters the word processing program produces. To remove the word processing format, you press **CODE–R**. The following prompt appears:

<Press GO to confirm REMOVE FORMAT, CANCEL to cancel command>

Press **GO**.

Note: If you use the .jcl file to install the Queue Manager and the Spooler automatically, the Mouse Server entry must appear before the Queue Manager entry.

Setting Mouse Controls

After you install the Mouse Server, you use the SET MOUSE CONTROLS command to select the mouse cursor speed and type.

To set the mouse controls, you type **SET MOUSE CONTROLS** at the Executive command line, and press **GO**. There is no command form.

Note: You must use a keyboard with a mouse to operate the SET MOUSE CONTROLS command.

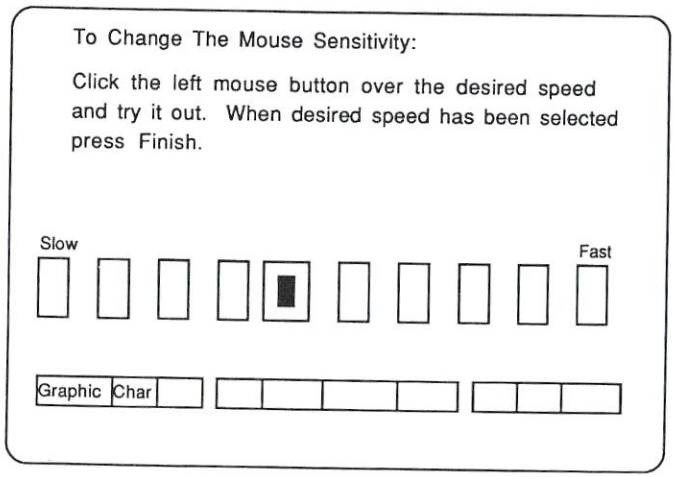
Speed Selection

With the SET MOUSE CONTROLS command, you can set the speed with which the cursor tracks the motion of the mouse. There are ten speeds. Refer to figure 2–3.

When the SET MOUSE CONTROLS screen first appears, the cursor is in the current system default speed. An application uses this default tracking speed unless it has set its own default.

To change the speed of the mouse, you use the mouse to move the cursor to one of the boxes on the screen. Click the left button to enter your selection. To return to the system default speed at any time, press **CANCEL**.

Figure 2–3 **SET MOUSE CONTROLS Subcommand Form On a Graphics Workstation**


To Change The Mouse Sensitivity:
Click the left mouse button over the desired speed and try it out. When desired speed has been selected press Finish.
Slow
Fast
Graphic
Char

After selecting a speed setting, you press **FINISH**. The speed you have selected now becomes the new system default speed. This setting remains between logout and logon, but you must reset it if you reboot the workstation.

Cursor Selection

If you have a graphics workstation, you can change the appearance of the cursor. The default cursor for a graphics workstation is Graphic, which appears on the screen as an arrow. The Character (Char) cursor appears as a reverse video box.

The system displays function keys at the bottom of the Speed Selection screen. (Refer to figure 2–3.) To change the appearance of the cursor, you press the appropriate function key.

Accessing Communications Modules

The IDS and Four–Port Communications Expander modules allow you to connect additional serial printers and/or communications devices (such as modems) to the workstation. To access the Four–Port Communications Expander, you must install the DataComm Server system service each time you start up the system.

Note: To perform spooled printer operations using a printer connected to a Four–Port Communications Expander, you must install the DataComm Server before you install the Queue Manager and the Spooler (refer to section 4).

You must install the XBIF Server before you install the DataComm Server or the server for certain other intelligent modules.

Installing the XBIF Server

The XBIF Server allows intelligent modules to work on the workstation with the Central Processing Unit (CPU). The server manages the hardware bus between the CPU and the intelligent module.

An intelligent module contains a coprocessor that can perform some of the tasks normally performed by the CPU, thereby optimizing CPU performance. Intelligent modules include the Local Area Network (LAN) module, Intelligent Data Communication Slice (IDS), the Voice Processor Module, and the PC Emulator.

You can use the INSTALL XBIF SERVER command to install the XBIF Server manually, or you can modify your [Sys]<Sys>SysInit.jcl file to install it automatically (refer to Installing the XBIF Server and DataComm Server Automatically).

INSTALL XBIF SERVER Command

You use the INSTALL XBIF SERVER command to load the XBIF Server into memory.

To use the XBIF SERVER command, you type **INSTALL XBIF SERVER** at the Executive command line, and press **GO**. There is no command form.

Installing the DataComm Server

You use the INSTALL DATACOMM SERVER command to install the DataComm Server manually, or you can modify your [Sys]<Sys>SysInit.jcl file to install it automatically (refer to Installing the XBIF Server and DataComm Server Automatically).

INSTALL DATACOMM SERVER Command

To install the DataComm Server manually, you type **INSTALL DATACOMM SERVER** at the Executive command line, and press **GO**. There is no command form.

Installing the XBIF Server and DataComm Server Automatically

The standard system software includes a special file, [Sys]<Sys>SysInit.jcl, with default entries that install the Queue Manager and the Spooler automatically when you start up or reset the master (refer to section 4).

You can use the [Sys]<Sys>SysInit.jcl file to install the XBIF Server and DataComm Server automatically if either of the following conditions apply:

- You have a standalone workstation.
- In a cluster system, the Four–Port Communications Expander is connected to the master workstation and the DataComm Server is installed at the master workstation.

To install the XBIF Server and DataComm Server automatically, you use the Editor or word processor to add the following entries to the file:

```
$RUN <Sys]<Sys>XBIF.run
$RUN [Sys]<Sys>DCXServer.run
```

Note: The XBIF Server entry must appear before the DataComm Server entry. If you use the file to install the Queue Manager and the Spooler automatically, the DataComm Server entry must appear before the Queue Manager entry $RUN [Sys]<Sys>InstallQMgr.run.

Accessing Applications

You can access applications in several ways:

- If the Context Manager software is installed, you can use the Context Manager menu that appears after you sign on (refer to your Context/Window Manager documentation).
- You can use an Executive command or program a function key to load the application's run file (refer to section 3).
- You can configure your system to bypass the Executive and load your most frequently used applications when you sign on to your system. (Refer to your installation and configuration documentation).

System Signoff

You end your work session by saving your work, exiting the application, and logging out.

Using The Executive

This section contains procedures and information for using the BTOS Executive, including:

- using Executive commands
- setting the path
- setting the system date and time
- setting the screen and video characteristics
- improving system performance
- receiving and resolving system errors
- listing the contents of the log file
- monitoring application partitions

What is the Executive?

The Executive is the interface between the workstation and the BTOS operating system. You can use the Executive to invoke file management utilities, or to begin sessions in an application such as a word processing or spreadsheet program.

When you complete the SignOn form procedure, BTOS enters the Executive level of operation and the Executive command line appears on the screen. At this level, you interact with the workstation by entering commands which tell the workstation what you want it to do.

You initiate an Executive command by typing it at the Executive command line, and pressing **GO**.

Note: You can include entries in your User Configuration file that allow you to type the name of an application in the **User name** field of the SignOn form, bypass the Executive, and activate the application directly. (For more information on user file entries, refer to your installation and configuration documentation.)

Executive Commands

Executive commands allow you to activate system operations, including:

- file management tasks
- user or application programs
- status information
- system management functions

BTOS has a standard set of Executive commands defined in a command file on the system directory. The default file is [Sys]<Sys>Sys.cmds. However, your particular workstation's command set depends on its disk and system configurations. If the effective command file is malformed or unreadable, the Executive uses [Sys]<Sys>Sys.cmds. If [Sys]<Sys>Sys.cmds is unusable, the Executive does not function.

If both the effective command file and the default are unusable, you should boot from a floppy disk that contains a good Sys.cmds file, and, while this Sys.cmds file is effective, repair your original Sys.cmds. (Refer to section 7 for instructions when modifying a command file.)

Note: Your current command file can change during a BTOS work session. The command file closes each time you execute a COPY, PRINT, RENAME, DELETE, SET PROTECTION, or any command that invokes an application. When the Executive subsequently reopens the command file, it again determines the effective file as specified in your user configuration file. BTOS automatic volume recognition does not extend to automatic command file recognition; if your user configuration file specifies a command file on a volume that is not mounted, the Executive defaults to [Sys]<Sys>Sys.cmds. Mounting the missing volume does not automatically change the current command file.

You can modify the [Sys]<Sys>Sys.cmds file to add, change, or delete existing commands. You can also create a customized command file for a specific user by copying the default command file to a new file; adding, changing, or deleting commands; and then specifying the name of this new command file in the User Configuration file. (For more information on modifying a command file, refer to section 7; for more information about configuring your system for individual users, applications, and tasks, refer to your installation and configuration documentation.)

Note: If you attempt to redo a command several times, changing parameters each time, you can cause the Type–Ahead buffer to overflow. If this happens, reenter the command manually.

If you hold down **SHIFT** while you press **GO** to execute a command, the system does not store the command; therefore, you cannot recall it with the Redo feature. If you activate a command using **GO** and then activate a command using **SHIFT–GO**, when you press **F1** at the next Executive command prompt, the system displays the previous command (the last command activated with **GO**).

Note: The Executive does not store special keyboard characters in the Type–Ahead buffer (refer to Entering Special Keyboard Characters). If any of the parameters include special keyboard characters, the Redo feature may not produce the result you desire.

Programming the Function Keys

You can program a function key to give you immediate access to a command, application, or process. To retrieve the command, you press the appropriate function key, called a hotkey, and the command is automatically initiated. The hotkey stores an Executive command in any function key from **F2** through **F10**.

Use the following procedure to designate an Executive command hotkey:

1 Type the command at the Executive command line.

Enter the entire command, or abbreviate it by entering only as many characters as necessary to uniquely identify it.

If the command requires additional information, press **RETURN**; a command form appears. If no additional information is necessary, skip to step 3.

2 Fill in all required fields of the command form and any optional fields where you want to specify additional parameters.

3 Hold down **CODE** and press the function key (**F2** through **F10**) that you want to assign to this command.

4 Press **GO.**

The system executes the command.

5 Repeat steps 1 through 4 to assign commands to other function keys.

You can replace a stored command with a different command by repeating steps 1 through 4 and, in step 3, pressing a function key that is currently storing a command.

To retrieve a stored command, press the appropriate function key (**F2** through **F10**). The command automatically appears on the screen, along with any associated command forms, command fields, and parameters you entered in those fields.

Setting the Path

The path is the route that the operating system takes to access a file. It consists of a node name (applicable in network systems), a volume name, a directory name, and, optionally, a file prefix and/or password.

When you first sign on to the system, the path is set to the values specified in your User file. When you are at the Executive level, the current path values (also called the logged-in values) appear on the left of the second line of the Status Area.

If you try to access a file using a file name only, the system assumes that the file is located in the node, volume, directory, and (if set) file prefix of the current path.

To access a file in another directory on the same volume, you must include the directory name in your entry, for example, if the current path is [Accounting]<manager> and you want to access an Expenses file in the <User> directory of the [Accounting] volume, you enter: <User>Expenses.

To access a file in another volume, for example, [Purchasing], you must enter the complete file specification: [Purchasing]<User>Expenses.

Note: You can use a device name (such as [d0] or [f0]) instead of a volume name to access a file in another volume.

You change the current path by using either the PATH command or the LOGIN command.

PATH and LOGIN Commands

The PATH and LOGIN commands allow you to change the currently logged-in path. You can change the node, volume, directory, file prefix, and/or password for the specified volume or directory.

To activate this command, you type **PATH** or **LOGIN** at the Executive command line, and press **RETURN**. The system displays the appropriate command form shown in figures 3–2 and 3–3.

Figure 3–2 **PATH Command Form**

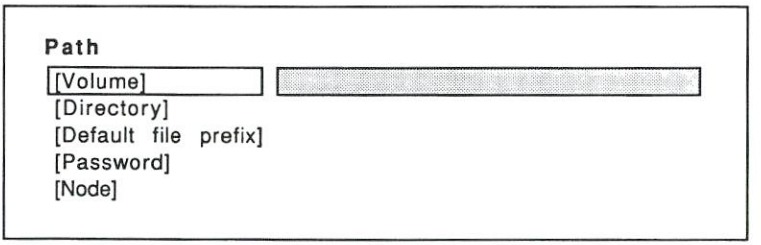
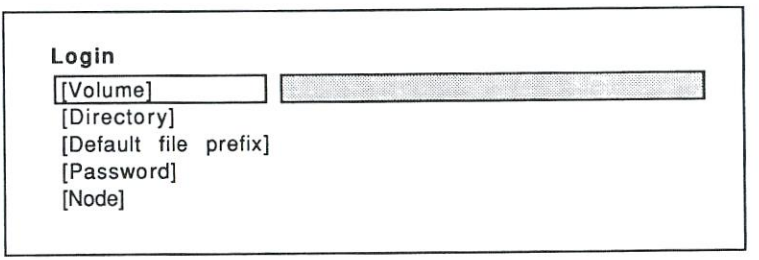


Figure 3–3 **LOGIN Command Form**



The PATH and LOGIN commands have no mandatory fields, but they have five optional fields (enclosed in square brackets). To change the current path, you must make an entry in at least one of the optional fields. To accept the default in a field, you leave the field blank. Refer to table 3–3 for information about each optional field.

When you complete the command form, you press **GO**. The new path then appears in the Status Area.

Table 3–3 **PATH and LOGIN Command Optional Fields**

Field	Action/Explanation
[Volume]	The default is the currently logged–in volume. To change the volume, enter the name of the desired volume or a drive device name. Square brackets are not required.
[Directory]	The default is the currently logged–in directory. To change the directory, enter the name of the desired directory. Angle brackets are not required.
[Default file prefix]	The default is the currently logged–in default file prefix (if any). To assign a default file prefix to any file called up in the designated directory, enter a name ending with a right angle bracket, for example, mgr>. **Note:** The right angle bracket is a convention, and is not required. The system places this prefix at the beginning of any subsequent file specification you give. To remove an assigned default file prefix, enter '' (two single quotation marks with no space between).

Table 3–3 **PATH and LOGIN Command Optional Fields** (continued)

Field	Action/Explanation
[Password]	The default is the password assigned (if any) when you signed on to the system. If the directory has an assigned password, enter its volume or directory password to gain access to the directory. Password characters appear on the screen as pound signs (##). To remove an assigned password from the path, enter '' (two single quotations marks with no space between). These marks appear on the screen as pound signs (##).
[Node]	This field applies only to B–NET (network) workstations. The default is the currently logged–in node. To change the node, enter the name of the desired node. Braces are not required. To remove a node name from the path, enter '' (two single quotation marks with no space between).

Setting the System Date and Time

To change the system date or time for any reason (such as after a power failure or for daylight savings time), you can make the changes without returning to the SignOn form by using the SET TIME command.

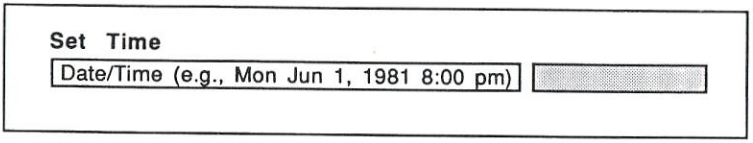
You can also change the format of the date or time (for example, to international or military format).

SET TIME Command

The SET TIME command allows you to set the system clock. If you use this command at any workstation in a cluster configuration, it sets the system clock for the entire configuration.

To activate this command, you type **SET TIME** at the Executive command line and press **RETURN**. The system displays the SET TIME command form shown in figure 3–4.

Figure 3–4 **SET TIME Command Form**



The SET TIME command form has one mandatory field, **Date/Time**.

Use the following guidelines when you enter a parameter in this field:

- Day of week

  Enter the current day. You need only enough of the name to identify it (for example, Mo for Monday).

- Month

  Enter the current month. You need only enough of the name to identify it (for example, Ja for January).

- Day of Month

  Enter a number between 1 and 31 that specifies the current day of the month.

- Year

  Enter the current year. You can enter two or four digits (19 is optional).

- Abbreviated Form

  You can, optionally, enter the current month, day, and year combined in an abbreviated form (for example, 6/4/89 for June 4, 1989).

- Time

  Enter the current hour, minute, and, optionally, time qualifier in the format: 7:00 AM.

  If you omit the optional qualifier (AM or PM), the system interprets a time between 7:00 and 11:59 as AM, and a time between 12:00 and 6:59 as PM. To specify a time before 7:00 AM or after 7:00 PM, include the qualifier (AM or PM).

  You can use the 24–hour notation of two digits to specify the hour (for example, 14:22). However, the system does not automatically display the time in 24–hour notation unless you edit the NLS.asm file (refer to your operating system reference documentation).

Configuring Your Screen

You can configure the screen to your needs by changing characteristics such as length, width, color, (on color workstations), reverse video, timeout, and scrolling capability. The SCREEN SETUP command allows you to change all these attributes, while the VIDEO command allows changes to screen attributes you use most often.

SCREEN SETUP Command

The SCREEN SETUP command allows you to change one or more screen characteristics. These attributes remain in effect until you reset them or log out of the Executive. The screen characteristics that you can change include:

- length of screen
- width of screen
- default color (color workstations only)
- reverse video
- scrolling capabilities
- screen timeout
- cursor shape and visibility
- background color

To activate this command, you type SCREEN SETUP at the Executive command line. If you press **GO**, the system sets all screen attributes to the default values. To change one or more screen attributes, you press **RETURN**. The system displays the SCREEN SETUP command form (refer to figure 3–5).

Figure 3–5 **SCREEN SETUP Command Form**

```
Screen Setup
[Reverse video?]
[Large characters?]
[Screen length]
[Suppress character attributes?]
[Suppress pause between pages?]
[Color (Default = Previous)]
[Screen timeout (in minutes)]
[Background color (Default = Previous)]
[Suppress blinking cursor? (B27-LCW only)]
[Block for cursor shape? (B27-LCW only)]
```

The SCREEN SETUP command form has ten optional fields. You can leave any or all of these fields blank to accept the default or enter parameters to override the defaults. (For information about each optional field, refer to table 3–4.)

Table 3–4 **SCREEN SETUP Command Optional Fields**

Field	Action/Explanation
[Reverse video?]	The default is no; the system displays light characters on a dark background. To display dark characters on a light background, press **y**.
[Large characters?]	This field applies only to B27 systems that have wide screen capabilities. The default is no; the system sets the screen width at 132 characters. To set the screen width at 80 characters, enter **y**.
[Screen length]	The default sets the screen length at full screen. The number of lines varies, depending on the workstation you are using. To specify the screen length, enter the desired length in number of lines. To display a shorter screen, enter a number between 10 and 34. If you specify a screen length less than full screen, the amount of memory the screen uses is reduced.
[Suppress character attributes?]	The default is no; the system does not suppress character attributes and the command form parameter fields remain in reverse video. To suppress character attributes and eliminate the reverse video highlight from the command form parameter fields, enter **y**.
[Suppress pause between pages?]	The default is no; the system prompts you to press NEXT PAGE before scrolling any information off the screen. To suppressthepausebetweenpages,enter **y**.

Table 3–4 **SCREEN SETUP Command Optional Fields** (continued)

Field	Action/Explanation
[Color (Default = Previous)]	This field applies to color workstations only. The system sets this parameter to the color you specified most recently.To specify a color other than green, enter the name of the color. Other available colors are blue, white, amber, and yellow.
[Screen timeout (in minutes)]	The screen timeout characteristic turns the screen off automatically when you do not enter any characters for a specified number of minutes. You can turn the screen back on by pressing any key. The default does not use the screen timeout feature; the screen remains on as long as the workstation is on. To use the screen timeout feature, enter the number of minutes delay after an entry before the system turns off the screen.
[Background color? (Default = Previous)]	The default is the previous color. This field applies to color workstations and workstations with enhanced video capability (B28 EV, B38 EV, and B39 with the EV card). The system sets this parameter to the color you specified most recently. To specify black, white, blue, yellow, or amber, enter the name of the color.
[Suppress blinking cursor? (B27 LCW only)]	This option is only available on workstations with programmable cursors, like the B27 Low Cost Workstation (LCW). The default is no.
[Block for cursor shape? (B27 LCW only)]	This option is only available on workstations with programmable cursors, like the B27 Low Cost Workstation (LCW). The default is no.

When you complete the SCREEN SETUP command form, you press **GO** to activate the command. The system sets the screen attributes according to your specifications.

VIDEO Command

The VIDEO command allows you to change the screen characteristics that you use most often:

- scrolling capabilities
- screen timeout
- default color (color workstations only)
- width of screen
- background color

To activate this command, you type VIDEO at the Executive command line. If you press **GO**, the system sets all screen attributes to the default values. To change one or more screen attributes, you press **RETURN**. The system displays the VIDEO command form (refer to figure 3–6).

Figure 3–6 **VIDEO Command Form**

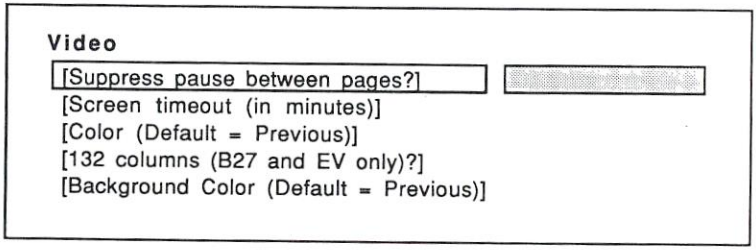

Video
[Suppress pause between pages?]
[Screen timeout (in minutes)]
[Color (Default = Previous)]
[132 columns (B27 and EV only)?]
[Background Color (Default = Previous)]

Table 3–5 **VIDEO Command Optional Fields**

Field	Action/Explanation
[Suppress pause between pages?]:	The default is no; the system prompts you to press NEXT PAGE before scrolling any information off the screen. To suppress a pause between pages displayed on the screen, enter y.
[Screen timeout (in minutes)]:	The screen timeout feature turns the screen off automatically when you do not enter characters for a specified number of minutes. You can turn the screen back on by pressing any key. The default does not use the screen timeout feature; the screen remains on as long as the workstation is on. To use this feature, enter the number of minutes you want the system to wait after an entry before it turns off the screen.
[Color (default = Previous)]:	This field applies to color workstations only. The system sets this parameter to the color you specified most recently. To specify white, blue, green, yellow, or amber, enter the name of the color.
[132 Columns (B27 and EV only)?]:	This field applies only to B27 and EV workstations, which have wide screen capabilities. The default is no; the system sets the screen width at 80 columns. To set the screen width that 132 columns, enter y.
[Background Color (Default = Previous)]:	This field applies to color workstations and workstations with enhanced video capability (B28 EV, B38 EV, and B39 with the EV card). The system sets this parameter to the color you specified most recently. To specify black, white, blue, yellow, or amber, enter the name of the color.

When you complete the VIDEO command form, you press **GO** to activate the command. The system sets the screen attributes according to your specifications.

Improving System Performance

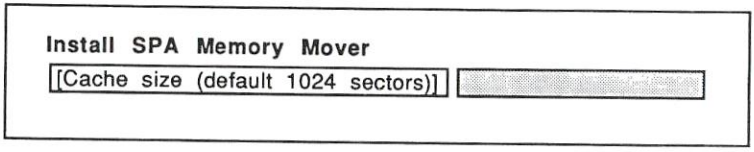
You use the INSTALL SPA MEMORY MOVER and INSTALL RAM DISK commands to install the System Performance Accelerator (SPA) utility on B28, B38, and B39 workstations. SPA enhances the speed performance on protected mode systems by caching frequently used files in Random Access Memory (RAM).

INSTALL SPA MEMORY MOVER Command

You use the INSTALL SPA MEMORY MOVER command to install the SPA extended memory manager on B28, B38, and B39 workstations. This memory manager handles the system services required to access and manipulate the file cacher in extended memory.

To use the INSTALL SPA MEMORY MOVER command, you type **INSTALL SPA MEMORY MOVER** at the Executive command line, and press **RETURN**. The command form (refer to figure 3–7) appears on the screen.

Figure 3–7 **INSTALL SPA MEMORY MOVER Command Form**



The command form has one optional field, **[Cache size (default 1024 sectors)]**. You specify the amount of RAM, in sectors, for the file cacher. Each sector equals 512 bytes of memory. The default number of sectors is 1024 (1/2 Mb of memory). The minimum acceptable cache size is 128 sectors.

DEINSTALL SPA MEMORY MOVER Command

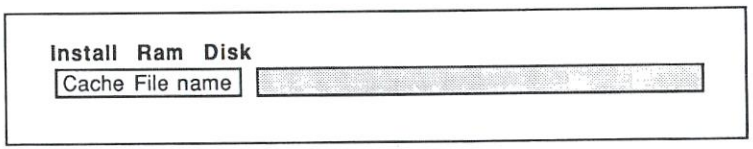
You use the DEINSTALL SPA MEMORY MOVER command to deinstall the SPA MEMORY MOVER from your B28, B38, or B39 workstation. To use the command, type **DEINSTALL SPA MEMORY MOVER** at the Executive command line, and press **GO**. There is no command form.

INSTALL RAM DISK Command

You use the INSTALL RAM DISK command on B28, B38, and B39 workstations to install the System Performance Accelerator (SPA) read-only file cacher. This is a portion of the processor's random access memory (RAM) that contains user-specified files. You can speed up system performance by loading frequently used files into the cacher.

To use the INSTALL RAM DISK command, you type **INSTALL RAM DISK** at the Executive command line, and press **RETURN**. The INSTALL RAM DISK command form (refer to figure 3–8) appears on the screen.

Figure 3–8 **INSTALL RAM DISK Command Form**



The command form has one mandatory field, **Cache file name**. You enter the name of the file that contains the list of files you want to load into the cache. The files you list can include application and data files.

Note: You must first install SPA MEMORY MOVER before you install RAM DISK (refer to INSTALL SPA MEMORY MOVER command).

Receiving and Resolving System Error

While you are using BTOS, system events and errors can occur which the system reports to you with an error message and/or numerical status code. Error messages are usually self-explanatory. If a status code appears, refer to your status codes documentation.

Listing the Contents of the Log File

The log file [Sys]<Sys>Log.sys is the error-logging file that you can request the system to create when you initialize a disk with the IVOLUME command. (For information on the IVOLUME command, refer to section 5.)

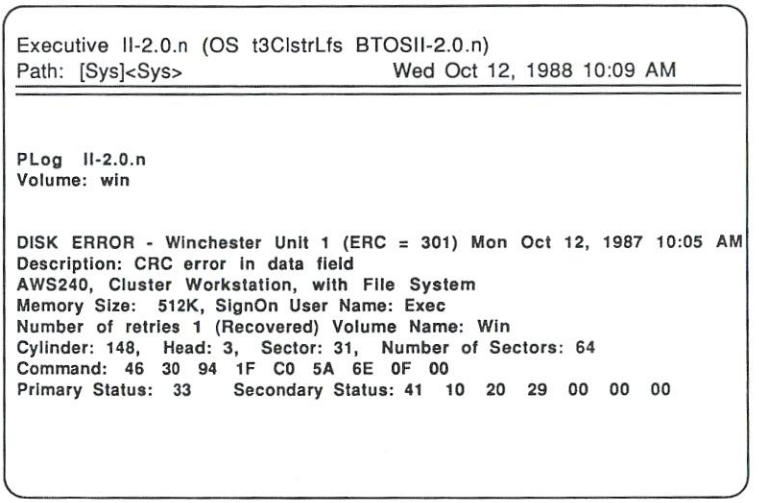
Each time a recoverable or nonrecoverable system error or a system event occurs, the system enters a report in this log file. The system generates an entry for the following:

- cluster communications errors
- disk errors
- ISAM errors
- system crashes
- system boot errors
- system initialization errors
- B-NET NET errors

Each entry in the log file contains the date and time of the error, the error type, and additional information about the error. Figure 3-9 shows a sample log file entry.

Note: If you have a 301 disk error in your log, it means your hard disk has bad spots. You must use the information in the log, such as Cylinder, Head, Sector, and Number of Sectors (length of the bad spot), to record the bad spots every time you reinitialize your hard disk. For information on how to record bad spots, refer to section 5.

Figure 3–9 **Sample Log File Entry**


Executive II-2.0.n (OS t3ClstrLfs BTOSII-2.0.n)
Path: [Sys]<Sys> Wed Oct 12, 1988 10:09 AM
PLog II-2.0.n
Volume: win
DISK ERROR - Winchester Unit 1 (ERC = 301) Mon Oct 12, 1987 10:05 AM
Description: CRC error in data field
AWS240, Cluster Workstation, with File System
Memory Size: 512K, SignOn User Name: Exec
Number of retries 1 (Recovered) Volume Name: Win
Cylinder: 148, Head: 3, Sector: 31, Number of Sectors: 64
Command: 46 30 94 1F C0 5A 6E 0F 00
Primary Status: 33 Secondary Status: 41 10 20 29 00 00 00

As the log file fills, the system overwrites the oldest entries with the newest ones. Therefore, you should check the log file periodically to identify marginally functioning hardware or data base errors.

Note: The Status Code 290 (**Log buffer overflow**) appears when multiple errors occur so rapidly that the system cannot log all of them.

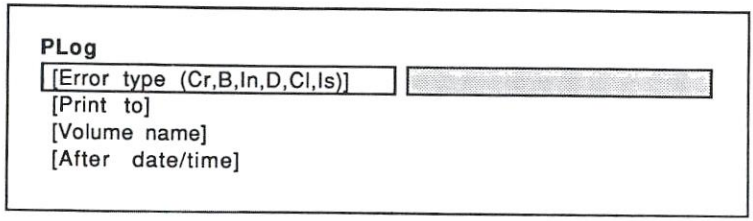
You can display the log file contents by using the PLOG command.

PLOG Command

The PLOG command allows you to display the contents of the error-logging file [Sys]<Sys>Log.sys. You can display the log on the screen or, optionally, write it to a file or print it.

To activate this command, you type **PLOG** at the Executive command line, and press **RETURN**. The system displays the PLOG command form shown in figure 3–10.

Figure 3–10 **PLOG Command Form**



The PLOG command form has no mandatory fields, but it has four optional fields (enclosed in square brackets). You can press **GO** to accept the defaults in these fields. The system then displays the entire list of entries in the log file for the [Sys] volume.

You can enter parameters in any or all of the optional fields to override the defaults. Refer to table 3–6 for information about each optional field.

When you complete the PLOG command form, you press **GO**. The system displays the log file according to your specifications. Figure 3–9 shows a sample log file entry.

Table 3–6 **PLOG Command Optional Fields**

Field	Action/Explanation
[Error type (Cr,B,In,D,Cl,Is)]	The default directs the system to display all entries in the log file.To specify the type of errors you want the system to display, enter the error type code using the following guidelines:

Error	Code
cluster communication errors	Cl
disk errors	D
ISAM errors	Is
system boot errors	B
system crashes	Cr
system initialization errors	In

Table 3–6 **PLOG Command Optional Fields** (continued)

Field	Action/Explanation
[Print to]	The default directs the system to display the log file on the screen. To write the log to a file or print it, enter the name of the destination file or the printer device name (for example, [Lpt]).
[Volume name]	The default directs the system to display the log file for the current [Sys] volume. To specify the volume of the log file you want to display, enter the volume name. The system maintains log files for system volumes only, and only if you direct the system to do so using the IVOLUME command (refer to section 5).
[After date/time]	The default directs the system to display all the log file entries after the earliest date and time recorded in the file. To display log file entries after a particular date/time, enter the starting date/time. Use the date/time format entered in the SET TIME command or at the SignOn form (refer to SET TIME command and SignOn Form).

Monitoring Application Partitions

The Application Partition Management Facility (APMF) of multipartition and variable partition BTOS provides partition and task control utilities that allow you to obtain partition status information.

You can use APMF to monitor the status of each partition within a real mode or protected mode operating system. You use the PARTITION STATUS command to activate APMF.

PARTITION STATUS Command

The PARTITION STATUS command allows you to display the status of partitions in a multi– or variable partition operating system. It displays partition names, partition and application memory sizes, application run files, and partition first byte addresses. You can receive updated status information by using the function keys (refer to Function Key Display Area).

To activate this command, you type **PARTITION STATUS** at the Executive command line, and press **GO**. There is no command form. The PARTITION STATUS display appears (refer to figures 3–11 and 3–12). The PARTITION STATUS display varies according to whether your workstation uses a real mode or protected mode operating system.

The PARTITION STATUS display consists of two areas: a Status area and a Function Key Display area.

Figure 3–11 **Sample Real Mode PARTITION STATUS Display**

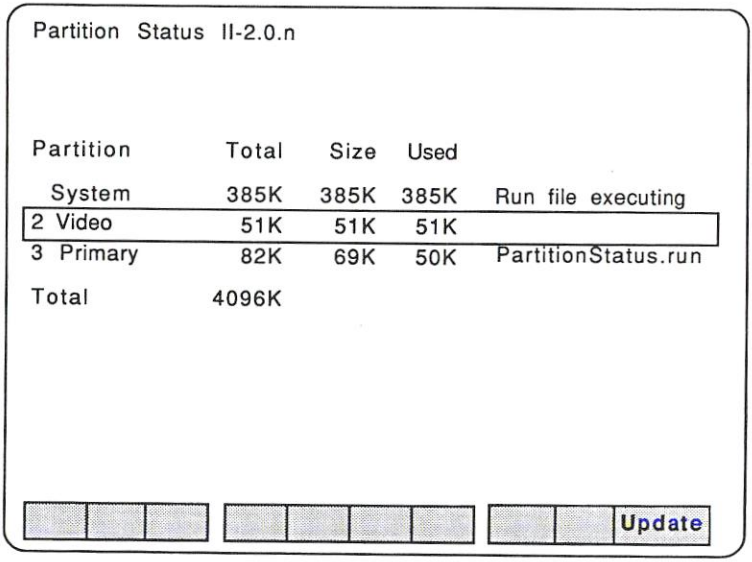
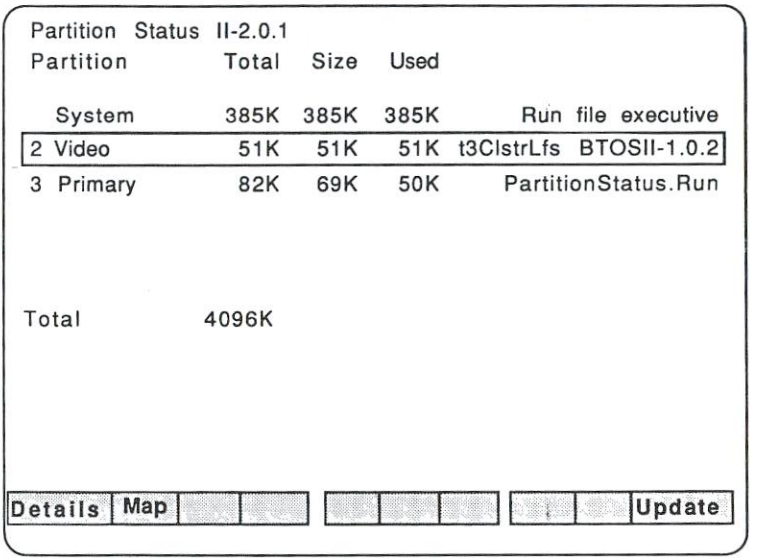

Partition Status II-2.0.n
Partition Total Size Used
System 385K 385K 385K Run file executing
2 Video 51K 51K 51K
3 Primary 82K 69K 50K PartitionStatus.run
Total 4096K
Update

Figure 3–12 **Sample Protected Mode PARTITION STATUS Display**



Status Area

The PARTITION STATUS Status Area contains a table that lists each partition in the system with corresponding information under the headings described in table 3–7.

Table 3–7 **PARTITION STATUS Status Area Headings**

Heading	Description
Partition	the name and number of the partition; the user number is the same as the partition handle
Total	the amount of memory (in Kb) allocated to the partition by the operating system
Size	the amount of this partition's memory (in Kb) that is available to the application program
Used	the amount of memory (in Kb) used by the application program
Run file executing	the run file name of the executing application program; on protected mode systems, this field may be blank if the system is executing a system service

Note: The figures used by PARTITION STATUS are approximate and do not indicate the exact number of bytes used by any partition or the entire system. Additionally, from 32 Kb to 64 Kb of video memory is not accounted for in PARTITION STATUS's computation for total system memory.

Within the table, a full-bright, reverse-video highlight indicates the currently selected partition. You can change the partition selection by using the **Up Arrow** or **Down Arrow** to move the highlight to another partition name.

Function Key Display Area

The Function Key Display area appears at the bottom of the PARTITION STATUS display. It consists of three groups of half-bright rectangles which represent the 10 keyboard function keys. The labeled keys activate status information.

On a workstation running the protected mode operating system, three function keys are available:

Details	**F1**
Map	**F2**
Update	**F10**

On a workstation running the real mode operating system, the Update function key (**F10**) is available. The Details and Memory Map functions are not available on real mode systems.

Displaying Details About Memory Partitions

The Details function **(F1)** displays the exit run file, user number, partition type, exact size of the partition in bytes, and detailed statistics about memory use and operating status.

The highlighted line on the Partition Status display shows the currently selected partition. To display detailed status information about a partition, you select the partition by pressing the **Up Arrow** or **Down Arrow**. Then you press the Details function key (**F1**).

Displaying the Memory Map

The Map function (**F2**) displays a detailed memory map showing memory usage for each partition and total memory used. It also displays free memory, memory used for code or data, and swapped memory.

The highlighted line on the PARTITION STATUS display shows the currently selected partition. To display detailed memory information about the partitions, you press the Map function key (**F1**).

Updating the PARTITION STATUS Display

To update the PARTITION STATUS display, you press Update (**F10**). The system displays the current status of all partitions.

Assigning Identification Numbers to Cluster Workstations (B26, B27, B28, and B38 Only)

The BTOS Hardware ID service and the optional Cluster Hardware Identification device (for B26, B27, B28, and B38 workstations) allow you to assign a different identification (ID) number to each workstation in a cluster (up to a maximum of 126). This feature is for use with applications and system services that must be able to identify the workstations within a cluster and distinguish them from one another.

Note: To use the Hardware ID service feature, you must make sure a workstation has the optional Hardware Identification device installed. For more information concerning the Cluster Hardware Identification device, contact your Customer Support Representative.

The Hardware ID service includes the following three commands:

- The INSTALL HARDWARE ID command clears the partition in which the service runs and installs the service into your system's memory.
- The WRITE HARDWARE ID command allows you to assign an ID number to a workstation, or change the currently assigned number.
- The READ HARDWARE ID command allows you or an application program or system service to access a workstation's currently assigned ID number.

The Hardware ID service is a dynamically installed system service; that is, it is not part of the system that activates automatically when you turn on or reset your workstation.

You can install the service manually, or you can use the [Sys]<Sys>SysInit.jcl file to install the service automatically (refer to Installing the Hardware ID Service Automatically). From a real mode cluster, you use [Sys]<sys>WSxxx>SysInit.jcl, where xxx is your workstation identifier.

Installing the Hardware ID Service Manually

To install the Hardware ID service in your system's memory, you enter the INSTALL HARDWARE ID command. Next, you enter the WRITE HARDWARE ID command to assign an ID number to your workstation. Finally, you use the READ HARDWARE ID command to put it into an area of memory where applications and system services can retrieve it.

Note: You should enter these commands only once between signing on and turning off or resetting your system, or logging out.

INSTALL HARDWARE ID Command

To clear the partition and install the Hardware ID service in memory, you type **INSTALL HARDWARE ID** at the Executive command line and press **GO**. There is no command form.

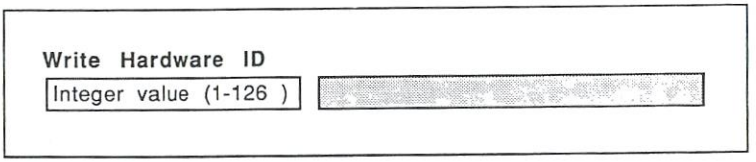
WRITE HARDWARE ID Command

You use the WRITE HARDWARE ID command to assign an ID number to a workstation, or to change its currently assigned ID number.

The Hardware Identification device's memory stores the ID number and retains it when you turn off or reset your workstation, or log out.

To assign an ID number to a workstation, or to change the currently assigned ID number, you type **WRITE HARDWARE ID** at the Executive command line and press **RETURN**. The system displays the WRITE HARDWARE ID command form (refer to figure 3–13).

Figure 3–13 **WRITE HARDWARE ID Command Form**



You must enter a parameter in the **Integer value (1–126)** field. You assign your workstation a number from 1 through 126 that is different from the numbers assigned to the other workstations on the cluster.

When you complete the WRITE HARDWARE ID command form, you press **GO**.

The Hardware Identification device contains memory which stores the workstation's ID number. The workstation retains that ID number until you change it.

READ HARDWARE ID Command

You use the READ HARDWARE ID command to access your workstation's currently assigned ID number. Entering this command displays the workstation's ID number, and puts it into an area of memory where applications and system services can retrieve it. The number remains there until you turn off or reset your workstation, or log out.

To access your workstation's currently assigned ID number, you type READ HARDWARE ID at the Executive command line and press **GO**. There is no command form. Your workstation's current ID number appears below the command prompt.

Installing the Hardware ID Service Automatically

The standard system software includes a special file, [Sys]<Sys>SysInit.jcl, with default entries that install the Queue Manager and the Spooler automatically. (For more information on installing the Queue Manager and the Spooler automatically, refer to your installation and configuration documentation.)

You can use the [Sys]<Sys>SysInit.jcl file to install the Hardware ID service and read your workstation's ID number automatically when you start up or reset your system. From a real mode cluster, you use [Sys]<sys>WSxxx>SysInit.jcl, where xxx is your workstation identifier.

- You use the Editor to add the following entries to the file:

```
$RUN [Sys]<Sys>HWID.run
$RUN [Sys]<Sys>RHWID.run
```

Exiting from the Executive

To exit from the Executive and return to the SignOn form, you use the LOGOUT command.

LOGOUT Command

The LOGOUT command ends your current session, removes any information you specified previously at the SignOn form or with the PATH command (refer to PATH command), and displays a new SignOn form.

To activate the LOGOUT command, you type **LOGOUT** at the Executive command line, and press **GO**. There is no command form.

A new SignOn form appears. You must fill in this form before activating any other commands.

The Spooler Configuration file also specifies whether or not the system prints a banner page to flag the beginning of each document (refer to Banner Page).

Banner Page

If you enter commands to print additional documents while a spooled print operation is in progress, the Spooler prints the documents continuously in the order you enter the commands (unless the sequence is changed by specific priority or print date/time).

To allow you to separate the documents easily, you can include an entry in the Spooler Configuration file that instructs the Spooler to print a banner page (refer to figure 4–1 for an example) at the beginning of each document. (Refer to the installation and configuration documentation for procedures when modifying the Spooler Configuration file.)

In addition to flagging the beginning of a document, the banner page provides the following information:

- the name of the file
- the date and time of printing
- the copy number

You can also include the text of a notice file in the banner page. The notice file, [Sys]<Sys>Spooler.notice, is a text file you create and revise using the Editor (refer to section 8) or a word processing program. If the file exists on your system, the text appears on each banner page.

Figure 4–1 **Sample Banner Page**

```
**********      File format1 Printed Fri Jul 12, 1985 10:19 AM Copy 1
**********      File format1 Printed Fri Jul 12, 1985 10:19 AM Copy 1
**********      File format1 Printed Fri Jul 12, 1985 10:19 AM Copy 1
```

Installing the Queue Manager and the Spooler

The Queue Manager and the Spooler are dynamically installed system services. That is, you must use manual commands to load them into memory each time you start up the system unless you revise the [Sys]<Sys>SysInit.jcl file for automatic installation. (Refer to Installing the Queue Manager and the Spooler Automatically.)

On cluster systems, you install the Queue Manager at the master workstation and the Spooler at each of the workstations where printers are connected.

Installing the Queue Manager and the Spooler Manually

You use the INSTALL QUEUE MANAGER and INSTALL SPOOLER commands to install the Queue Manager and Spooler manually. Spooled printing operations require that you install the Queue Manager and the Spooler in that order (refer to The Queue Manager, and The Spooler). If you attempt to install the Spooler before the Queue Manager, the system displays an error message.

Note: To perform spooled printer operations using a printer connected to a Four–Port Communications Expander or IDS module, you must install the XBIF Server before you install the Queue Manager and the Spooler (refer to section 2).

INSTALL QUEUE MANAGER Command

To install the Queue Manager manually, you type **INSTALL QUEUE MANAGER** at the Executive command line, and press **RETURN**.

The system displays the INSTALL QUEUE MANAGER command form (refer to figure 4–2). The command form has two optional fields (enclosed in square brackets). You can leave these fields blank to accept the defaults or enter parameters to override the defaults. Refer to table 4–1 for information about each optional field.

BTOS checks the entries for duplication to ensure that no queue name is used twice and to ensure that different queues do not specify the same queue entry.

If installation fails (for example, the queue index file contains duplicate entries), the system displays an error message. The error message may also be logged to the log file.

Figure 4–2 **INSTALL QUEUE MANAGER Command Form**

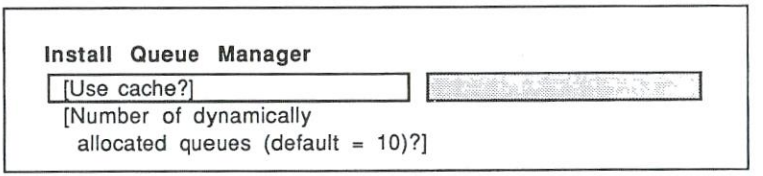


Table 4–1 **INSTALL QUEUE MANAGER Command Optional Fields**

Field	Action/Explanation
[Use cache?]	If you enter **y** (yes), the system installs the Queue Manager with an extra buffer area for caching disk access of queue entries. The number of cache entries depends on the number of queues, but does not exceed 126. The cache is meant to increase the speed of the Queue Manager. If you enter no, the system uses less memory space for the Queue Manager.
[Number of dynamically allocated queues (default = 10?)]	The maximum allowable number of queues is the sum of the number of entries in the queue index file and your entry in this field. If the number of queues in queue index file is 8 and you enter 3, the maximum number of queues is 11.The default is 10 queues added. The range for the number of queues is 0 to 256. A value of 0 inhibits the use of dynamic queues.

DEINSTALL QUEUE MANAGER Command

To deinstall the Queue Manager manually, you type **DEINSTALL QUEUE MANAGER** at the Executive command line, and press **GO**. There is no command form.

INSTALL SPOOLER Command

To install the Spooler manually, you type **INSTALL SPOOLER** at the Executive command line. The INSTALL SPOOLER command includes an option that allows you to specify a custom Spooler Configuration file; the default is the standard software Spooler Configuration file, [Sys]<Sys>SplCnfg.sys. (For more information on the Spooler Configuration file, refer to the installation and configuration documentation.)

- If the Spooler uses the standard Spooler Configuration file, you press **GO**. No command form appears. The system installs the Spooler.
- If the Spooler uses a Spooler Configuration file you have created for a custom system, you press **RETURN**. The system displays the INSTALL SPOOLER command form (refer to figure 4–3).

  The INSTALL SPOOLER command form includes one optional field, **[Spooler configuration file]**. You enter the name of the custom Spooler Configuration file, and press **GO**. The system installs the Spooler.

Installing the Queue Manager and the Spooler Automatically

The standard system software includes a special file, [Sys]<Sys>SysInit.jcl, with default entries that install the system services, such as the Queue Manager and the Spooler, when you boot or reset the system (refer to figure 4–4). You use the Editor or a word processing program to revise this file.

You can use the SysInit.jcl file on a standalone system or on a master workstation where both the Queue Manager and the Spooler reside. For cluster workstations, the following limitations apply:

- You must remove the Queue Manager installation entry on all cluster workstations.
- You must start up the master workstation (and install the Queue Manager) before you start the cluster.

- You must delete or deactivate the Queue Manager installation entries on all SysInit.jcl files located on cluster workstations with hard disk storage. You must also delete or deactivate Spooler installation entries on all SysInit.jcl files located on cluster workstations with hard disk storage where printers are not installed.

  To deactivate the file, you use the COPY command to copy the original file to a new file name; you can then modify the original file. To deactivate the entry, you type a semicolon before the first character of each line you are suppressing. If you prefer, you can delete or deactivate the file and install the Queue Manager and the Spooler manually.
- You must have a unique printer name in the default [Sys]<Sys>SplCnfg.sys file on all cluster workstations with hard disk storage where multiple printers are used.

Figure 4–3 **INSTALL SPOOLER Command Form**

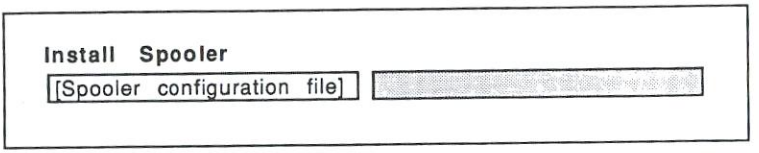


Figure 4–4 **[Sys]<Sys>SysInit.jcl File**

```
$ JOB SysInit
$ RUN [Sys]<Sys>Batch.Run
$ RUN [Sys]<Sys>InstallQMgr.Run
$ RUN [Sys]<Sys>IntallSpl.Run
$ END
```

Performing Direct Printing on a Spooled Printing System

On a system configured for spooled printing, you can configure one or more printers for direct printing (refer to the installation and configuration documentation). You can perform direct printing operations any time the Spooler is not installed on the workstation where the printer configured for direct printing is located.

If the Spooler is installed, you can free the channel for direct printing by entering the FREE PRINTER CHANNEL subcommand of the SPOOLER STATUS command (refer to FREE PRINTER CHANNEL Subcommand).

Printing Files Created Within an Application Program

Some application programs, such as word processing, have their own printing facilities. You can configure these for direct or spooled printing; however, the programs have specific commands for printing files. If you create a file within an application program, you should use the facilities it provides for printing.

Executive Printing Commands

The Executive commands you use to activate printing operations differ, depending on whether you are using direct or spooled printing. Five commands are available for printing:

- APPEND
- COPY
- FORMAT
- PRINT
- SPOOLER STATUS

Refer to table 4–2 for information about these commands.

The SELECT QUEUE subcommand form has one required field: **Queue name**. You enter the name of the Scheduling Queue for which you want status information in this field.

When you complete your entry, press **GO** to execute the subcommand, **CANCEL** to deny and return to the previous status display, or **FINISH** to exit the SPOOLER STATUS command.

When you press **GO**, the the Queue Status display appears (refer to figure 4–10). The information displayed includes the name of the queue, the printer that serves the queue, the names of the files in the queue with the priority number of each file. If the queue status list is longer than the screen, you press **NEXT PAGE** to scroll to the end of the list. You press **CANCEL** to stop the listing and **PREV PAGE** to redisplay the queue status information.

After you check the queue status, you can choose from the list of five subcommands located at the bottom of the Queue Status display.

To display the status of a different queue, you press **Q.** The system redisplays the SELECT QUEUE subcommand form.

Figure 4–9 **SELECT QUEUE Subcommand Form**

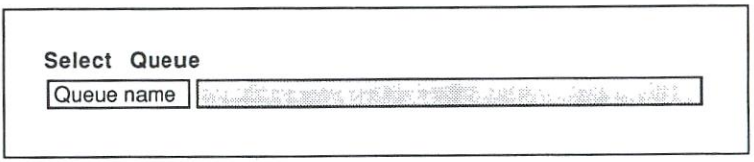


Figure 4–10 **Sample Queue Status Display of the SELECT QUEUE Subcommand**

```
Spooler II-2.0.n
Path: [Sys]<Sys>                          Wed Oct 12, 1988 10:09 AM

Queue: SPL

Served by:  B9251-1, B9252

File Queued                          Priority
[Win]<Sys>Aws.Doc                        1
[Win]<Joe>A                              5
[Win2]<File>File                         5

Press NEXT PAGE to continue, or CANCEL to stop listing.

Commands:  <To invoke a command, enter the character shown.
           To exit the program, press FINISH.>
D - Delete print request        Q - Select queue
M - Main status display         S - Select printer
P - Print file
```

DELETE PRINT REQUEST Subcommand

The DELETE PRINT REQUEST subcommand allows you to delete a specified queue entry from the Scheduling Queue.

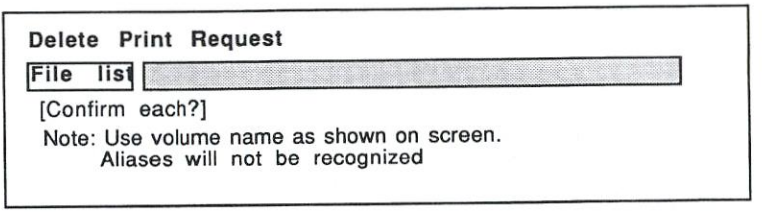
To activate this subcommand, you press **D**. The system displays the DELETE PRINT REQUEST subcommand form shown in figure 4–11.

The DELETE PRINT REQUEST subcommand form has one required field: **File list**. You enter the list of files or file specifications you previously requested for printing.

The subcommand form has one optional field, **[Confirm each?]**. If you accept the default (no), the system does not prompt you for confirmation of each print request you want to delete. To receive a confirmation of each print request, you enter **y** in this field.

Note: If you use the wild card character (*) in the **File list** field to delete all files from the queue, the system deletes the currently printing file in addition to the others.

Figure 4–11 **DELETE PRINT REQUEST Subcommand Form**



When you complete your entry, you press **GO** to delete the print request, **CANCEL** to deny and return to the previous status display, or **FINISH** to exit the SPOOLER STATUS command.

MAIN STATUS DISPLAY Subcommand

The MAIN STATUS DISPLAY subcommand allows you to redisplay the Main Status display shown in figure 4–7.

To activate this subcommand, you press **M**. The following prompt appears on the screen:

Main Status Display

<Press GO to execute, CANCEL to deny, or FINISH to exit.>

You press **GO** to return to the Main Status display, **CANCEL** to deny and return to the previous status display, or **FINISH** to exit the SPOOLER STATUS command.

PRINT FILE Subcommand

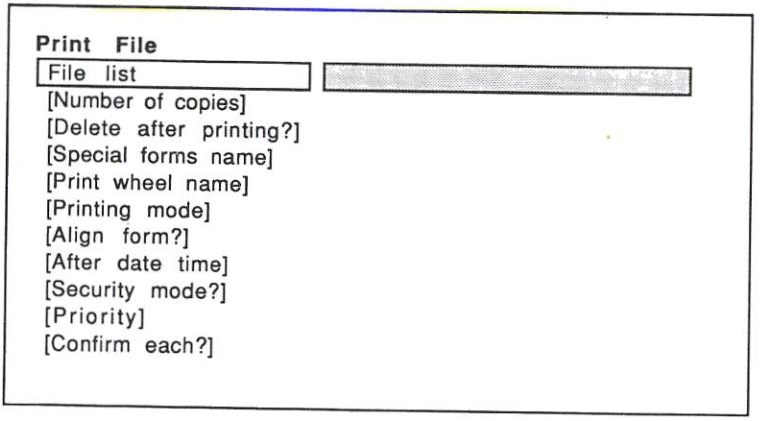
The PRINT FILE subcommand allows you to create a queue entry for file printing and to add it to the Scheduling Queue.

To activate the PRINT FILE subcommand, you press **P**. The system displays the subcommand form shown in figure 4–12.

You must enter a parameter in the **File list** field. You enter the list of files or the specifications of the files you want to print.

The PRINT FILE subcommand has ten optional fields (enclosed in square brackets). You can leave any or all of these fields blank to accept the defaults or enter parameters to override the defaults. Refer to table 4–8 for information about each optional field.

Figure 4–12 **PRINT FILE Subcommand Form**



Section 5

Managing Data

This section describes the tasks you perform to manage data on your system, including:

- organizing data into volumes, directories, and files
- accessing files on another workstation within your cluster

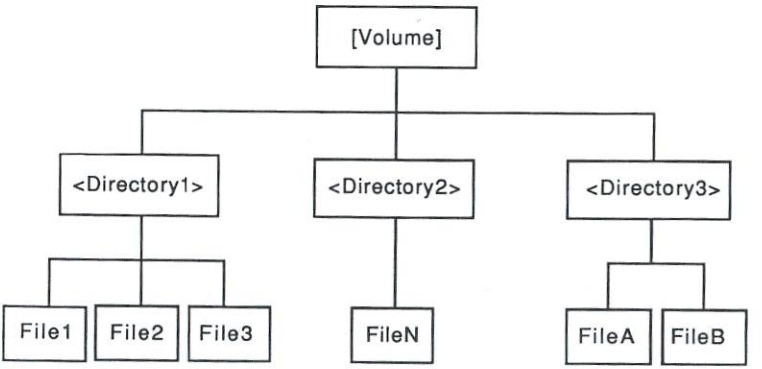
Organizing Data

BTOS organizes storage for data and programs into three categories:

- volumes (diskettes or hard disks formatted and initialized to store data or programs)
- directories (groups of related documents, programs, or other data stored on volumes)
- files (documents, programs, or other sets of related data within directories)

Refer to figure 5–1 for an illustration of the BTOS file management structure. Volumes, directories, and files are explained in detail in the following paragraphs.

Figure 5–1 **BTOS Filing Structure**



Volumes

Volumes are diskettes or hard disks where you store data or programs. Before you can use a diskette or hard disk as a volume, you must initialize it.

Volume Name

You can identify each BTOS volume by two names:

- the drive device name
- the volume name

When you use a drive device name or a volume name in a complete file name, you must enclose it in square brackets, for example, [f0]<sys>anyfilename; [Accounting]<May>salary.

The Drive Device Name

A drive device name indicates the drive a volume is located in. The drive device name is a default volume name. You can use it as an alternative to the volume name entry in any command form except forms that request both device and volume names. Table 5–1 lists and explains typical drive device names.

You assign a device name to a volume at the time you initialize the volume with the IVOLUME command (refer to Initializing Volumes). You enter the two-character code for the drive in which the volume is located in the **Device name** field of the IVOLUME command form.

Table 5–1 **Typical Drive Device Names**

Device Name	Drive Description
d0	the first hard disk drive at a workstation with local file storage or at the master workstation
d1	an additional hard disk drive on a workstation
!d0	the hard disk drive at the master workstation when specified from a cluster workstation with local file storage **Note:** You cannot initialize the !d0 drive with the IVOLUME command.
!d1	an additional hard disk drive at the master workstation
f0	the leftmost floppy disk drive of a local workstation or at the master if the local workstation has no local file storage
f1	the second floppy disk drive on a workstation with two floppy disk drives
!f0	the first floppy disk drive of the master workstation when specified from a cluster workstation with local file storage

The Volume Name

You can use a volume name to describe the contents of a volume, for example, Accounting for accounting files or JohnDoe for John Doe's files.

A volume name has a maximum of 12 characters, a period, and a hyphen. A volume name must not duplicate any other volume or device name. Invalid names are (the italicized characters represent any characters you add to complete the name):

Comm*anything*
Lpt*anything*
Spla*nything*
Tape*anything*
Vid*anything*
d0, d1, d2, d3
f0, f1, f2, f3
Nul
Kbd

You assign a volume name by entering it in the **Volume name** field of the IVOLUME command form when you initialize the volume. If you use the Cluster File Access utility (refer to Accessing Files on Cluster Workstations), you must assign unique volume names to each hard disk in your cluster configuration.

Initializing Volumes

Before you can use a volume for storing data, you must initialize it. Initialization of hard disks differs depending on how you intend to use the disk. There are two types of hard disk volumes:

- a system volume, which contains the BTOS system image and its associated files
- a nonsystem volume, which is used for additional storage space only and does not contain the BTOS system image

Initialization of a hard disk used as a system volume takes place during the software installation procedure (refer to your installation and configuration documentation).

You must initialize all diskettes and B26, B27, B28, B38, and B39 nonsystem extension hard disks by using the IVOLUME command. You cannot use the IVOLUME command to initialize the current system volume.

Caution: Initialization erases the entire contents of a volume.

IVOLUME Command

The IVOLUME command allows you to prepare a diskette or hard disk for use as a BTOS volume. During this initialization process, IVOLUME:

- formats the disk or diskette
- identifies surface defects with write/read tests
- writes volume control structures onto the disk or diskette
- creates system files

To activate the IVOLUME command, you type **IVOLUME** at the Executive command line, and press **RETURN**. The system displays the IVOLUME command form shown in figure 5–2.

You must enter parameters in two IVOLUME fields:

- In the **Device name** field, enter the name of the device that contains the volume you want to format. For a

standard system, the typical names of the floppy disk drives are f0 and f1; the hard disk drives are d0, d1, d2, and d3.

- In the **Volume name** field, enter a name (a maximum of 12 characters) to identify the volume. This name must not duplicate any device or active volume name.

The IVOLUME command form also has 19 optional fields (enclosed in square brackets). The defaults for these fields are set for a nonsystem volume. You can leave any or all the fields blank to accept the defaults, or enter parameters to override the defaults. Refer to table 5–2 for information about each optional field.

When you complete the IVOLUME command form, you press **GO**. The initialization of the volume begins. You must respond to the prompts that appear during the initialization procedure.

To avoid accidentally erasing a volume that contains data, the system determines if the volume contains a valid Volume Home Block (VHB). If one exists, the volume has been formatted previously. Upon finding a valid VHB, the IVOLUME utility displays the information contained in it, and requests confirmation of the volume's reinitialization.

Note: The system states the maximum number of files in the volume as a range (for example, 47 to 71). This is an approximation; the actual number depends on the physical arrangement of the files in the volume. Similarly, the system states the maximum number of files in the <Sys> directory as a range approximating the number of file names on the volume's <Sys> directory. The actual number depends on the length of the file names and the maximum number of files on the volume.

If you are reinitializing a previously–formatted disk, the IVOLUME command saves the bad spot information on a scratch volume before reformatting the disk. If the IVOLUME operation fails, you can recover the bad spot information by specifying the scratch file name [scr]<$>IVBadSpots_d1.tmp in the **[Bad spots]** field of the IVOLUME command form.

Figure 5–2 **IVOLUME Command Form**

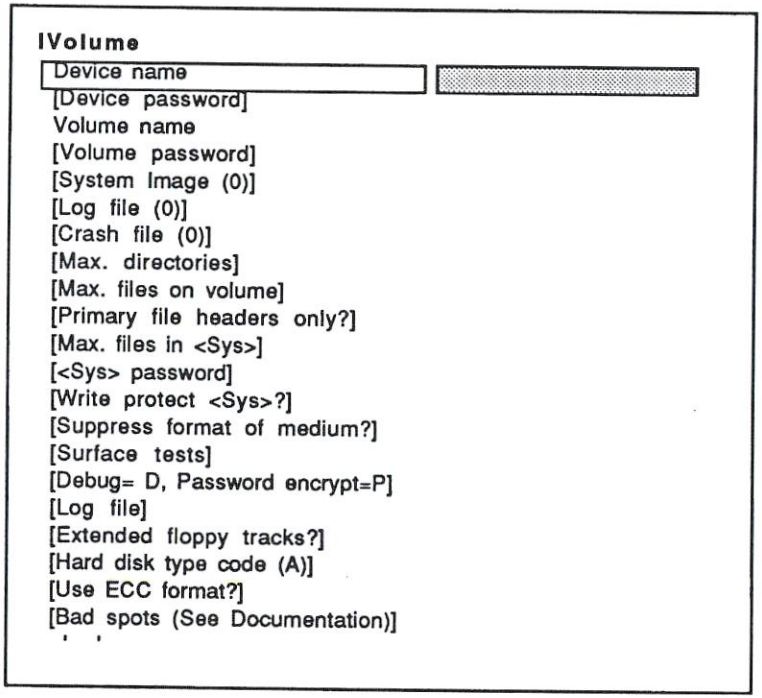


Table 5–2 **IVOLUME Command Optional Fields**

Field	Action/Explanation
[Device password]	The default device password is the same as the device name. A device password is required for all hard disks and user–designated floppy disks. To assign a device password, you must customize the operating system (refer to the installation and configuration documentation).

Table 5–2 **IVOLUME Command Optional Fields** (continued)

Field	Action/Explanation
[Volume password]	The default is no password. This leaves the volume unprotected, and none of its directories or files can have passwords. To assign a password to this volume, enter a maximum of 12 characters. You must use this password when you create files or directories, or when you open files on this volume. **Note:** You can assign a password to a volume at a later time with the CHANGE VOLUME NAME command.
[System Image (0)]	The default allocates zero sectors for the system image. To initialize a nonsystem disk (for example, an archive diskette or an expansion disk), accept the default. To initialize a system disk with a standard system image, enter **512** for B26/B27, or 580 for B28/B38/B39. To initialize a system disk with a nonstandard system image, enter the number of sectors required for the system run file. You can obtain this number by using the FILES command (refer to FILES Command). When you enter **y** in the [Details?] field of the FILES command form, the name of the system image file and the size of the run file at system build appear. For an expanded system, allow enough sectors to support another BTOS run file. IVOLUME creates the file [Sys]<Sys>SysImage.sys with the specified number of sectors, but does not copy the system image to it; you use the COPY or RESTORE command to perform this function. You cannot copy the SysImage.sys file to an initialized volume without using IVOLUME to allocate space for it. If the area for SysImage.sys is smaller than the SysImage.sys file being copied, the system displays an error message. **Note:** To change the allocated size of the [Sys]<Sys>sysimage.sys file, you must reinitialize the disk.

Table 5–2 **IVOLUME Command Optional Fields** (continued)

Field	Action/Explanation
[Log file (2)]	The default directs the system to allocate 2 sectors for the log file. The system writes log entries to the system disk only. If this volume does not contain a system image, change the value to 0. To specify a nonstandard size for the log file, enter the number of sectors to allocate. The log file may overwrite existing entries before it is convenient to print. To prevent this, enter a larger number in this field. **Note:** To change the allocated size of the Log file, you must reinitialize the disk.
[Crash file (0)]	After a system crash, bootstrapping dumps the entire memory contents into a Crash Dump file that you specify. This file helps determine the cause of the crash. You should make an entry in this field to use the system for program development or if you experience hardware or software problems. The default directs the system to allocate zero sectors for the Crash Dump file; thus, the system does not create a Crash Dump file when BTOS is bootstrapped. To create a Crash Dump file, enter 2 sectors for each 1 Kb of memory on the workstation. On B28, B38, and B39 workstations, you must have 2048 Kb or greater. **Note:** To change the allocated size of the Crash Dump file, you must reinitialize the disk.
[Max. directories]	The default directs the system to set the maximum number of directories for this volume, according to the volume size. To specify a maximum number of directories, enter the number.
[Max. files on volume]	The default sets the maximum number of files for this volume, according to the volume size. To specify a maximum number of files, enter the number. Allow a sufficient number for future expansion; you cannot increase this number at a later date without reinitializing the volume.

Table 5–2 **IVOLUME Command Optional Fields** (continued)

Field	Action/Explanation
[Primary file headers only?]	The default is no, which directs the system to allocate space for both primary and secondary File Header Blocks. Secondary File Header Blocks allow the system to maintain a backup copy of the disk directory. To conserve disk space, enter **y** to allocate space for a primary File Header Block only. This destroys the secondary file structure, but gains a large amount of disk space.
[Max. files in <Sys>]	The default directs the system to set the maximum number of files in the <Sys> directory, according to the volume size. To specify a maximum number of files, enter the number. Allow for more files than needed; file system performance degrades if the directory exceeds 80 percent capacity. Remember that the system and applications files reside in the <Sys> directory.
[<Sys> password]	The default is no password, which leaves the files in the <Sys> directory unprotected. To assign a password to the <Sys> directory, enter a maximum of 12 characters. A user must enter this password to create a file in this directory and to authorize the opening of the <Sys> directory file. **Note:** Password protection does not work unless you also specify a password for the volume.
[Write protect <Sys>?]	The default is no; the system does not prevent modification of the files in the <Sys> directory. To set the default file protection level of the files in the <Sys> directory to prevent modification, enter **y**. **Note:** Write protection does not work unless you also specify a password for the volume and the <Sys> directory.

Table 5–2 **IVOLUME Command Optional Fields** (continued)

Field	Action/Explanation
[Suppress format of medium?]	The default is no, which instructs the system to format your medium. You should accept the default if you are initializing a new disk. To reduce the time required to reinitialize a medium that was previously a formatted volume, enter **y**.
[Surface tests]	A surface test writes and reads each sector on the disk to ensure that it is defect–free. It logs any errors and makes an entry for that sector in BadBlk.sys. Surface tests use random data; therefore, the more tests specified, the more reliable the results. You should run surface tests the first time you initialize diskettes. Do not use any diskettes that have surface errors. The default values are 1 test for diskettes, 1 for initialized hard disks, and 8 for uninitialized hard disks. For more or fewer tests than the default, enter the desired number. If you enter **0**, the system reduces the time required to reinitialize a hard disk or a diskette.
[Debug = D, Password Encrypt = P]	Enter **D** if you want your system to display debugging information. The default does not allow the system to display debugging information. Enter **P** if you want to password encrypt your B28, B38, or B39 system. If you enter **P** in this parameter, your volume password is not visible when you do a system structure. **Note**: If you encrypt your volume password, write it down and store it in a safe place; the system will not allow you or other users to see the password in the system structures.
[Log file]	The log file receives a report of the IVOLUME operation. If this file does not exist, the system creates it; if it exists, the system automatically appends the log to it. The default directs the system to display the log only. To receive a printed log of the volume initialization, enter the name of the file that you want to receive this information on.
[Extended floppy tracks?]	The default is no. You cannot use extended floppy tracks at this time.

Table 5–2 **IVOLUME Command Optional Fields** (continued)

Field	Action/Explanation
[Hard disk type code(A)]	Enter a code in this field only if you are initializing a hard disk drive. If you do not know the type code for your hard disk drive or your hard disk drive does not contain a type code, press Help. The system displays Vendor Codes with their corresponding hard disk type codes to assist you in making an entry. Table 5–3 lists the parameters of available types of hard disk drives. The default is a type A drive. If your drive type is listed in table 5–3, enter its type code letter. If your drive type is not listed in table 5–3, enter its cylinder/heads/sectors separated by slash marks. **Note:** If you are reinitializing a hard disk drive, no entry is required in this field.
[Use ECC format?]	If the field is left blank, the system uses the existing CRC or ECC format. If the controller supports ECC and there is no previous format information on the disk drive, IVOLUME selects the ECC format. If you enter **y**, BTOS uses ECC when formatting and writing to the disk. If the controller does not support the ECC capability, you receive an error message. **Note:** If the controller supports ECC, drives larger than 40 Mb must use ECC. The error message, Drive this size must be formatted with ECC, displays when the capacity is greater.
[Bad spots (See Documentation)]	**Note:** These instructions do not apply to SCSI disks; you should not enter bad spots on a SCSI. This field applies to hard disk drives only. Each drive comes with a report of bad spots. Locate and read the media defect report that came with your system. Table 5–5 lists five types of defect reports with sample bad spot information entries.

Table 5–2 **IVOLUME Command Optional Fields** (continued)

Field	Action/Explanation
	The default indicates that no bad spots exist on the disk. **Caution:** IVOLUME performs a surface test to identify bad spots on the medium, but it may not detect marginal spots. Marginal bad spots can fail; thus, they are not appropriate areas to store data in. Whenever you initialize a new hard disk drive, you must enter the bad spot information for the drive. If you are reinitializing a hard disk drive, no entry is required in this field. If your media report lists bad spots, use the following instructions: □ Type entries for your report as formatted in the Sample Entries column in table 5–5. Insert slashes between the columns and use no spaces within an entry. □ If you have more than one entry, separate each entry with a space. □ If the bad spot information does not fit on the first line, press RETURN to continue on the next line. Do not divide an entry. □ If you cannot fit all of the bad spot information in the available space, create an @file containing the information and enter **@<filename>** on this line (refer to section 3), or continue adding information in the next field. □ This field appears below the [Bad Spot] parameter prompt field to allow space for entering additional bad spot information.

Table 5–3 **Parameters of Available Hard Disk Drives**

Type	Size	Cylinders	Heads	Sectors
A	10 Mb	306	4	16
B	10 Mb	306	4	16
C	20 Mb	612	4	16
D	40 Mb	645	7	16
F	20 Mb	612	4	16
G	20 Mb	612	4	16
K	68 Mb	1024		16
M	68 Mb	1024	8	16
N	40 Mb	699	7	16
O	68 Mb ECC	830	10	16
P	40 Mb ECC	989	5	16
T	140 Mb SCSI	1016	8	34

Increasing Disk Storage Space With the IVOLUME Command

You can increase the amount of disk space available for general data storage by making the following entries in the IVOLUME command form when you initialize hard disks or diskettes:

- Accept the zero default in the **[System Image (0)]** field so that no space is allocated for the system image file on the disk. For diskettes not used for booting, this also makes the removal of the floppy during hard disk bootstrapping unnecessary.
- Accept the zero default in the **[Crash file (0)]** field so that the system does not create a **CrashDump.sys** file on the disk.
- Enter a small number at the **[Max. directories]** and **[Max. files on volume]** fields.
- Enter **y** in the **[Primary file headers only?]** field. The system destroys the secondary file structure; however, you gain a large amount of disk space.

Determining Volume Bad Spots

When you use the IVOLUME command, the system prompts you for a record of the bad spots on your hard disk. If you have previously initialized your volume, you can use the BAD SPOT REPORT command to obtain a record of the bad spots. (Refer to table 5–5 for five types of defect reports with sample bad spot information entries.)

BAD SPOT REPORT Command

To activate the BAD SPOT REPORT command, you type **BAD SPOT REPORT** at the Executive command line, and press **RETURN**. The BAD SPOT REPORT command form appears (refer to figure 5–3).

The BAD SPOT REPORT command form has one required field, **Volume or device name**, and three optional fields (enclosed in square brackets). You leave any or all of the optional fields blank to accept the defaults or enter parameters to override the defaults. Refer to table 5–4 for an explanation of each BAD SPOT REPORT command field.

Figure 5–3 **BAD SPOT REPORT Command Form**

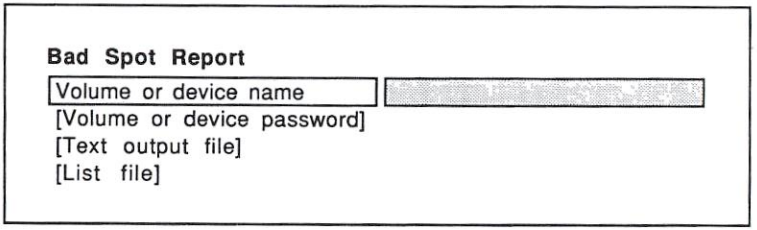


Table 5–4 **BAD SPOT REPORT Command Form Fields**

Field	Action/Explanation
Volume or device name	This is a required field.Enter the name of the volume or the device you want to check for bad spots.
[Volume or device password]	Enter the volume or device password, if applicable.
[Text output file]	The default is no text output file. To override the default, enter the name of the file where you want the bad spot report deposited. You can then use this file in subsequent IVOLUME operations in the **[Bad spots (See documentation)]** field.
[List file]	The default is no list file. To override the default and copy the screen report to a file, enter the file name.

Table 5–5 **Bad Spot Reports and Sample Entries**

Report Type	Sample Bad Spot Information			Sample Entries
Media Defect Reports	Cylinder	Head	Sector	
	11	0	4	11/0/#4
	30	2	12	30/2/#12
Media Defect Report	Cylinder	Head	Byte From Index (BFI)	Length (Bits)
	139	0	1505	201
	294	3	9061	221

Note: In your Media Defect Reports entry, place a number sign before the sector number.

Relocating Data from Volume Bad Spots

You can move data from bad spots to good spots and log the bad spot information with the Bad Sector Recovery utility. The Bad Sector Recovery utility moves the data from a specified bad cylinder, head, or sector to a good area on the disk. The specified bad spot is then added to the list of known bad spots.

To relocate the data, the Bad Sector Recovery utility must be able to allocate a contiguous area of memory large enough to contain the data being moved. If your disk does not have enough contiguous memory available, the utility cannot relocate the data.

Note: If you receive error code 301 while performing input/output, your disk probably has a bad spot. Review the log file (refer to the IVOLUME command) for the location of the bad spot, and then activate the Bad Sector Recovery utility.

You use the BAD SECTOR command to activate the Bad Sector Recovery utility.

BAD SECTOR Command

The BAD SECTOR command allows you to log bad sector information and move data from the bad sector to a good sector. The system adds an entry to BadBlk.sys.

To activate the command, you type **BAD SECTOR** at the Executive command line and press **RETURN**. The BAD SECTOR form appears (refer to figure 5–4). The form has five required fields and one optional fields (enclosed in square brackets). (Refer to table 5–6 for explanations of all fields.)

Note: These instructions do not apply to SCSI disks; you should not enter bad spots on a SCSI.

Figure 5–4 **BAD SECTOR Command Form**

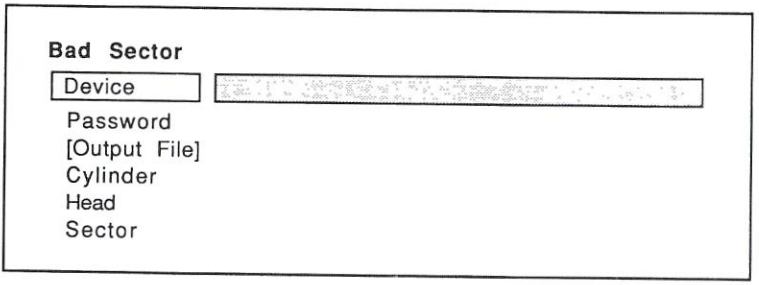


Table 5–6 **BAD SECTOR Command Form Fields**

Field	Action/Explanation
	Text deleted by PCN–001
Device	This is a required field. Enter the name of the device to be checked for bad spots.
Password	This is a required field if a password has been assigned. Enter the password (if any).
[Output file]	The default is no output file. To record bad spot information in an output file, enter the name of the file in this field (if the file does not exist, the system will create it).
Cylinder	This is a required field. Enter the name of the cylinder containing the bad spot where the information to be relocated is stored. The log file contains the name of this cylinder.
Head	This is a required field. Enter the name of the head containing the bad spot where the information to be relocated is stored. The log file contains the name of the head.
Sector	This is a required field. Enter the name of the sector containing the bad spot where the information to be relocated is stored. The log file contains the name of the sector.

Avoiding Volume Fragmentation with the IVOLUME Command

When you request BTOS to create or extend a file, the system attempts to allocate a single disk run or "extent." (An extent is one or more contiguous disk sectors that comprise all or part of a file.) If you have recently initialized or reinitialized a hard disk volume using the IVOLUME command, the system can easily find a single–disk extent large enough to satisfy your request.

However, if you create and delete files many times after initializing a hard disk volume, the disk extents available for allocation can shrink and scatter, making it impossible for the system to allocate an extent. In this case, the available storage of the volume is fragmented, and the system must allocate two or more smaller disk runs whose total size satisfies the request.

Volume fragmentation causes the system to perform at a reduced level of efficiency in several ways:

- The system requires more time to create or extend a file because it must access more sectors of the Allocation Bit Map to find enough disk extents to satisfy the request.
- The system requires more time to process a file sequentially because disk sectors that are logically consecutive are not necessarily physically consecutive.
- Fragmentation limits the number of files you can open concurrently because each open file requires allocation of a File Area Block in memory for each disk extent.

  For the system to accommodate a maximum number of concurrently open files, a sufficiently large number of File Area Blocks must be specified during the system build.

  Note: This must be done by a qualified system programmer using the BTOS II Customizer Package.

  Increasing the number of File Area Blocks, however, reduces the amount of memory available to the application system.

To avoid fragmentation of hard disk volumes you should regularly reinitialize them using the IVOLUME command.

Caution: The IVOLUME command erases the entire contents of a disk. Before you reinitialize a volume using the IVOLUME command, you must backup your disk to prevent loss of data (refer to section 6).

At the bottom of the Volume Status Display, the system shows the total file count and total sectors of all the directories in the volume.

Directories

A directory is a group of related documents, programs, or other data stored on a volume. You organize files into units called directories. A directory serves as an index of the location of each file stored on a volume.

Your system includes three types of directories:

- a system directory
- temporary storage directories (<$> directory) created by BTOS or application programs
- directories you create for organizing files and programs

The system directory <Sys> contains files and data needed for system operation. You should not delete, remove, or overwrite these files. The IVOLUME command creates the system directory on a diskette or hard disk during the initialization procedure.

The <$> directories are special directories in which programs can create temporary files. The system creates a <$> directory when it is needed.

For more information about the system and <$> directories, refer to your operating system reference documentation.

Creating Directories for Files and Programs

You create directories for organizing files and programs by using the CREATE DIRECTORY command. You assign each directory a different name (a maximum of 12 characters). To use a directory name as part of a complete file specification, you must enclose it in angle brackets (for example, <DirName>).

CREATE DIRECTORY Command

The CREATE DIRECTORY command allows you to create one or more directories with names you specify. You can also use it to set protection levels for the files of new directories, and to set the maximum number of files.

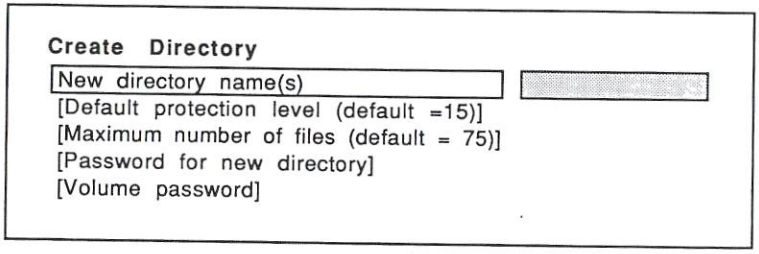
To activate this command, you type **CREATE DIRECTORY** at the Executive command line and press **RETURN**. The system displays the CREATE DIRECTORY command form shown in figure 5–8.

You must enter a parameter in the **New directory name(s)** field. Each name can have a maximum of 12 characters. If the new directory is not on the volume of the current path, you must also enter its volume name with the new directory name, for example, [VolName]DirName or [VolName]<DirName>.

Note: Do not use angle brackets within the directory name; use them only at the beginning and end of the name.

The CREATE DIRECTORY command form has four optional fields (enclosed in square brackets). You can leave any or all of these fields blank to accept the defaults or enter parameters to override the defaults. Refer to table 5–8 for information about each optional field.

Figure 5–8 **CREATE DIRECTORY Command Form**



To activate this command, you type **SET FILE PREFIX** at the Executive command line and press **RETURN.** The system displays the SET FILE PREFIX command form shown in figure 5–10.

You must enter a parameter in the **Default file prefix** field. You enter the name of the file prefix you want the system to use as a default. You must include a right angle bracket at the end of the name, for example, Expenses>. When you complete your entry, you press **GO**; the name you entered becomes the default for all future files created under the current path.

If you want to delete a previously created default file prefix, you enter " (two single quotation marks with no space between) in the **Default file prefix** field and press **GO**. This entry tells the system to blank out the field.

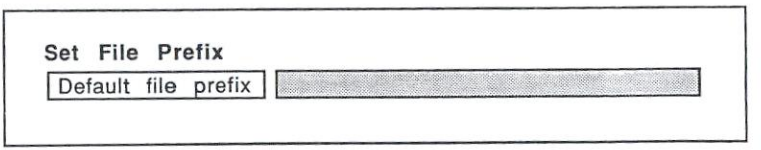
Specifying File Names in Executive Command Fields

The form of file names you enter at the Executive command line can differ depending on the current path, the default file prefix (if any), and the information the Executive requires to identify the file.

The distinction between uppercase and lowercase is not significant for matching file specifications; the system retains the case form of the name as you enter it. You can alter the case of the name with the RENAME command.

In some command fields, you must enter complete file specifications. In others, you can enter abbreviated specifications. You can use the wild card character to facilitate some file specifications. The following paragraphs explain each of these types of file name entries.

Figure 5–10 **SET FILE PREFIX Command Form**



Complete File Specification

The complete file specification is an expanded name for the file and indicates the node, volume, and directory where the file is located. You use the complete file specification to access a file in another volume and/or directory without changing your current volume and/or directory. You also use the complete file specification as a parameter in many Executive command forms.

A complete file specification has the following format: {NodeName}[VolumeName]<DirectoryName>FileName.

A {NodeName} refers to the name of an XE master or workstation outside the local cluster that works as a file server in a communications network. The {NodeName} specification is not required if you are not part of a network.

There are no spaces between the braces ({}), square brackets, ([ ]), angle brackets (< >), and FileName.

The complete file specifications of files with prefixes also include the volume and directory names, for example, [Accounting]<Manager>Personnel>Jones>Salary.

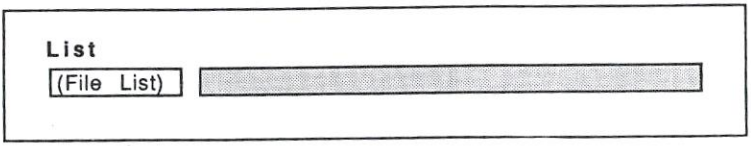
Abbreviated File Specification

You can abbreviate the complete file specification by including only as many parts of the file specification as the Executive needs to identify the file. You use the following formats:

- [VolName]<DirName>FileName (in this example, the node is not specified)
- <DirName>FileName
- FileName

The SignOn procedure sets the default values for the volume and directory. You can change these values with the PATH command. If you do not specify a volume name or directory name in a file specification, the Executive assumes that you want to use the default values of the path. For information on the PATH command, refer to section 3.

Figure 5–12 **LIST Command Form**



FILES Command

The FILES command allows you to display information about each of the files in a specified directory. You can optionally print the information or save it in a file. This file can serve as an @file, or you can use it to view or print the information at a later time.

You can list complete file names only or details about each file. The detailed information includes the following items:

- complete file name
- length in bytes
- number of sectors used (one sector = 512 bytes)
- date last modified
- protection level

The total number of sectors that all the files in the directory use also appears with the detailed information.

To activate this command, you type **FILES** at the Executive command line.

If you want to list the files of the directory in the current path with no details, you press **GO**. The list of files appears on the screen.

If you want to list the files in a directory other than that of the current path, display file details, or save or print file information, you press **RETURN**. The system displays the FILES command form shown in figure 5–13.

The FILES command form has seven optional fields (enclosed in square brackets). You can leave any or all of these fields blank to accept the defaults or enter parameters to override the defaults. Refer to table 5–13 for information about each optional field.

When you complete the FILES command form, you press **GO**. The system displays the file information. Figure 5–14 shows a sample FILES detail display. If you entered a printer device name in the **[Print file]** field, the system sends the information to the printer.

Note: If you want to use the output of the FILES command for an @file (refer to section 3), do not enter **y** in the [Details?] field.

A special wild card character, the tilde (~), allows you to exclude files from the list. For example, you have a directory that contains weekly, monthly, and quarterly reports. To list all of the files in the <reports> directory except for those with the suffix .weekly, you specify the following file list, leaving one space between the entries:

<reports>* ~*.weekly

Figure 5–13 **FILES Command Form**

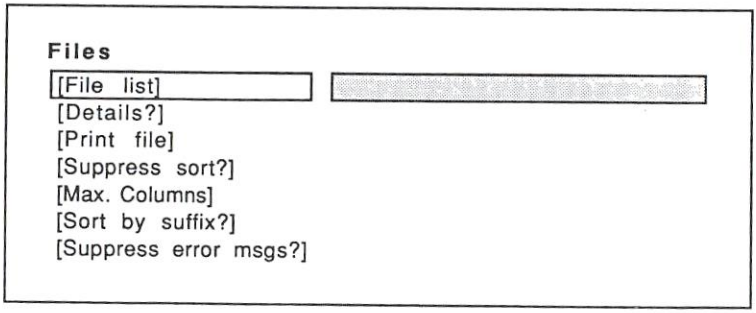


Figure 7–19 **Sample of a File Log**

```
Malformed input record in input file 0 at Lfa 512
189 bytes skipped before properly-formed record was found.
85 records read.
2835 bytes read.
```

Table 7–10 **MAINTAIN FILE Command Optional Fields**

Field	Action/Explanation
[Output files]	The default varies depending on your input files: If all files are readable using DAM, the output file is a DAM file; otherwise the output file is an RSAM file. If an output file exists, the system overwrites the file. To change the default, enter a file name.
[Log file]	The log file lists the number of data bytes processed, logical file address, and length of any malformed records. The default directs the system to display only the log. To direct the system to save the log, specify a file name. You can then print the log by printing that file.
[Remove deleted records?]	The default value is no. If the output file is an RSAM file, the system ignores deleted and malformed records. If the output file is a DAM file, the system places deleted and malformed records in the output file. To override the default for a DAM file, enter **y** in this field. The system does not place deleted or malformed records in the DAM output file.
[Suppress confirmation?]	The default value is no. When a malformed record appears in the input file, the system displays a message specifying its file address and length. It prompts you to skip the malformed record and keep processing the input file or terminate processing. To override the default, enter **y** in this field. When a malformed record appears in the input file, the system proceeds with user interaction. Refer to [Remove deleted records?].

Sorting and Merging Data Files

You can sort files of data records (RSAM, DAM, or ISAM) according to sort keys embedded within those data records, thus ordering a set of data records. You do this using the SORT command.

Note: If you sort an ISAM data store file, the result is a file accessible with RSAM or DAM, but not with a new ISAM data set.

You can merge several sorted data record files according to sort keys embedded within those records, thus combining one or more standard access method files into a single ordered file. You do this using the MERGE command.

(Text deleted by PCN-001)

SORT Command

The SORT Command sorts preexisting files of data records according to sort keys embedded within those records.

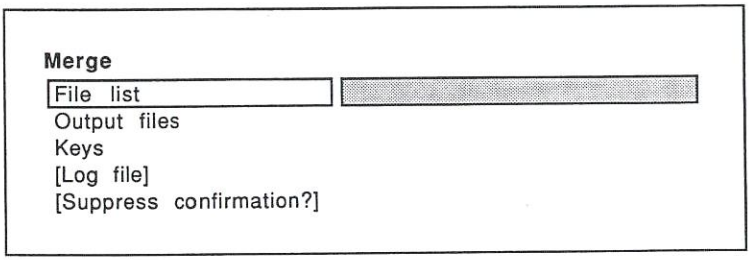
To activate the SORT command, you type **SORT** at the Executive command line, and press **RETURN**.

The system displays the SORT command form shown in figure 7–20. There are three required fields:

- In the **Input file** field, enter the names of the file(s) to be sorted.
- In the **Output file** field, enter the name of the file where you want the output written.
- In the **Keys** field, specify how the sort keys are to be embedded within each data record (refer to your Sort/Merge documentation).

The SORT command form has five optional fields. Refer to table 7–11 for an explanation of each optional field.

Figure 7–21 **MERGE Command Form**



Modifying Files

You can modify text files that contain user messages by using the Editor (refer to section 8).

Once you have modified the text files, you change them from text files to binary files so that the operating system can recognize the messages. You do this by using the CREATE MESSAGE FILE Command.

CREATE MESSAGE FILE Command

The CREATE MESSAGE FILE command translates ASCII text files containing user messages to binary files that the operating system can recognize.

To activate this command, you type **CREATE MESSAGE FILE** at the Executive command line, and press **RETURN**. The system displays the CREATE MESSAGE FILE command form (refer to figure 7–22). The CREATE MESSAGE FILE command form has one required field and one optional field (enclosed in square brackets). Refer to table 7–13 for information about the fields.

Figure 7–22 **CREATE MESSAGE FILE Command Form**

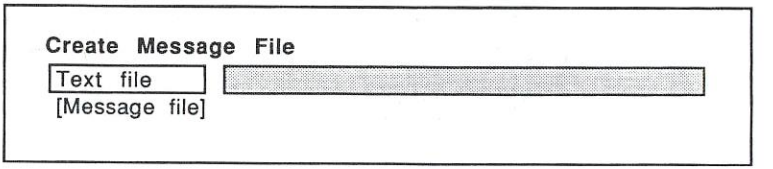


Table 7–13 **CREATE MESSAGE FILE Command Fields**

Field	Action/Explanation
Text file	Enter the name of the ASCII text file you want translated to binary code.
[Message file]	Enter the name of the message file you want to translate to. The default is the name of the text file you are translating from.

LIST REQUEST SET Command

You use the LIST REQUEST SET command during software installation or system software development. It translates binary loadable request files into text files. If there is more than one request file, the LIST REQUEST SET command merges them into one text file.

To use the LIST REQUEST SET command, you type **LIST REQUEST SET** at the Executive command line, and press **RETURN**.

You must enter the name of the request file in the **Request.N.sys file(s)** field to identify the binary request file(s) you want to translate to text file(s).

The LIST REQUEST SET command form (refer to figure 7–23) has three optional fields (enclosed in square brackets). Refer to table 7–14 for information about each optional field.

You use the related command MAKE REQUEST SET to translate the text file(s) back to loadable request file(s).

Figure 7–23 **LIST REQUEST SET Command Form**

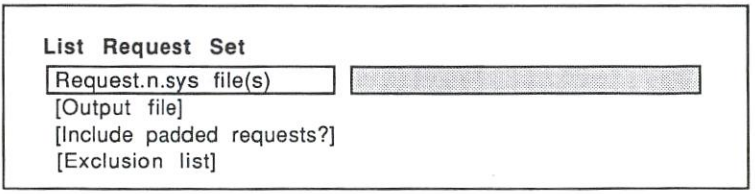


Table 7–14 **LIST REQUEST SET Command Optional Fields**

Field	Action/Explanation
[Output file]	Enter the file name of the output text file. If you do not enter a parameter in this field, the text file outputs to the CRT screen.
[Include padded requests?]	The default is no. If you enter yes in this field, the system displays all requests from the closest lower 1000h. For example, if you have a loadable request 601Fh, the system displays padded requests for 6000h through 601Fh.
[Exclusion List]	To exclude a request code(s) during the merge, enter the hexadecimal value(s) of the request codes to be excluded. You can use an @ file in this field. The default is to merge all request codes in the request file.

MAKE REQUEST SET Command

You use the MAKE REQUEST SET command during software installation or system software development. It translates loadable request files in text form to the single binary loadable request file: [Sys]<Sys>Request.sys. This file contains all your loadable requests in one file. The MAKE REQUEST SET command also reports duplicate request numbers and other similar errors.

You use the related command LIST REQUEST SET to translate binary loadable request files into text files.

To use the MAKE REQUEST SET command, type **MAKE REQUEST SET** at the Executive command line, and press **RETURN**. The command form (refer to figure 7–22) has two mandatory fields:

- In the **Text file(s)** field, you enter the name of the text file(s) you want to translate and merge into a binary loadable request file.
- In the **Binary request file** field, you enter the name of the file you want the system to build from the text files.

The command form also has three optional fields (enclosed in square brackets). Refer to table 7–15 for an explanation of each optional field.

Figure 7–24 **MAKE REQUEST SET Command Form**

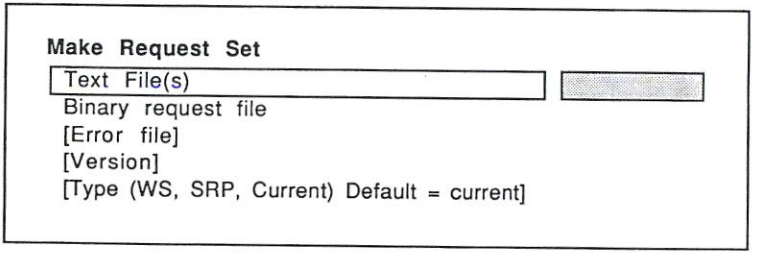


Table 7–15 **MAKE REQUEST SET Command Optional Fields**

Field	Action/Explanation
[Error File]	Enter a file name to identify the error file that records errors occurring during the build of the binary request set. The default filename is name.1st.
[Version]	Enter a version number to identify the loadable request file (actually a run file). The string you supply here can be identical to the string supplied to the [Version] parameter of the LINK and BIND commands. The default is no version identifier.

Table 7–15 **MAKE REQUEST SET Command Optional Fields** (continued)

Field	Action/Explanation
[Type (WS, SRP, Current) (default = Current)	This parameter allows you to produce formats for your machine. If you enter WS (workstation) or SRP (the XE master), the system produces a format suitable for operating systems released prior to BTOS II. If you enter Current, the system produces a format compatible with the current version of the operating system. This format is compatible with both workstation and XE master formats.

INSTALL NEW REQUESTS Command

You use the INSTALL NEW REQUESTS command when you install a product containing a loadable request code file that must be merged into the system request code file, [Sys]<Sys>Request.sys.

The INSTALL NEW REQUESTS command performs the functions of both the LIST REQUEST SET command, and the MAKE REQUEST SET command.

To activate this command, you type **INSTALL NEW REQUESTS** at the Executive command line, and press **RETURN**.

The INSTALL NEW REQUESTS command form has one required field, **Loadable Request File** (refer to figure 7–25). You enter the name of the loadable request file you want to merge into the system request file [Sys]<Sys>Request.sys.

The command form also has two optional fields. (Refer to table 7–16 for an explanation of each optional field.)

Figure 7–25 **INSTALL NEW REQUESTS Command Form**

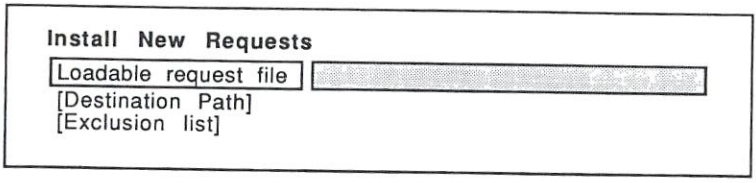


Table 7–16 **INSTALL NEW REQUESTS Command Optional Fields**

Field	Action/Explanation
[Destination Path]	To install Request.Sys onto another volume such as [!Sys]<Sys> for XE master operation, enter the full path into this field. The system loads the altered [Sys]<Sys>Request.sys request file when you restart or reset your system. The default destination path is [Sys]<Sys>.
[Exclusion List]	To exclude a request code(s) during the merge, enter the hexadecimal value(s) of the request codes to be excluded. You can use an @ file in this field. The default is to merge all request codes in the request file.

Monitoring Workstation Resources

You use the INSTALL STATISTICS SERVER command to install the Statistics Server on B28, B38, and B39 workstations. The Statistics Server maintains performance statistics for various resources within a workstation, and makes the statistics available to user programs that request them. You can use the Statistics Server to determine use of system resources such as files, disks, and processors.

The operating system accumulates file system performance statistics that an application program can clear and examine at any time. You can write a program that uses the Statistics Server to report one or more of the following:

- number of files opened, closed, deleted, or renamed
- number of files with remade file handles
- number of files with length changes
- number of normal task switches
- number of tasks terminated normally or abnormally
- number of partitions swapped in or out

Refer to your system reference and procedural interface documentation for details on using performance statistics.

INSTALL STATISTICS SERVER Command

The INSTALL STATISTICS SERVER command allows you to load the Statistics Server into active memory.

To load the Statistics Server, you type **INSTALL STATISTICS SERVER** at the Executive command line, and press **RETURN**.

The system displays the INSTALL STATISTICS SERVER form (refer to figure 7–26). The form has four optional fields (enclosed in square brackets). Leave the fields blank to accept the defaults, or enter parameters to override the defaults. Refer to table 7-17 for information about each optional field.

When you complete the INSTALL STATISTICS SERVER command form, you press **GO**.

Figure 7–26 **INSTALL STATISTICS SERVER Command Form**

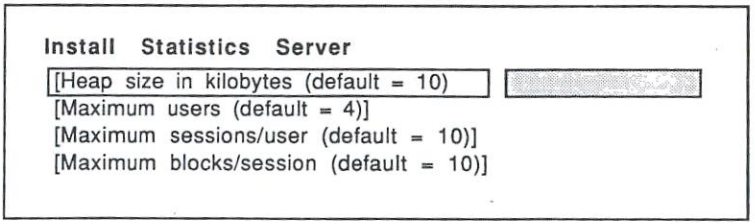

Install Statistics Server
[Heap size in kilobytes (default = 10)
[Maximum users (default = 4)]
[Maximum sessions/user (default = 10)]
[Maximum blocks/session (default = 10)]

Table 7–17 **INSTALL STATISTICS SERVER Command Optional Fields**

Field	Action/Explanation
[Heap size in kilobytes (default=10)]	The default is 10 KB. This parameter specifies the amount of memory to be allocated by the Server to collect statistics. The maximum is 55 KB.
[Maximum users (default=4)]	The default is 4. This parameter specifies the maximum number of users who can use the Server at the same time. The maximum is 10.
[Maximum sessions/user (default=10)]	The default is 10. This parameter specifies the maximum number of sessions that a user can have open at the same time. The maximum number of open sessions is 16.
[Maximum blocks/session (default=10)]	The default is 10. This parameter specifies the number of blocks that can be queried in a given session. This parameter is a combination of a block and the index in the Virtual Structure (VS). The maximum number of blocks is 20.

DEINSTALL STATISTICS SERVER Command

You use the DEINSTALL STATISTICS SERVER command to deinstall the Statistics Server on B28, B38, and B39 workstations. To remove the Statistics Server, type **DEINSTALL STATISTICS SERVER** at the Executive command line and press **GO**. There is no command form.

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